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National Hospital Ambulatory Medical Care Survey: 2002 Emergency Department Summary

by Linda F. McCaig, M.P.H., and Catharine W. Burt, Ed.D., Division of Health Care Statistics

Abstract

Objectives—This report describes ambulatory care visits to hospital emergency departments (EDs) in the United States. Statistics are presented on selected hospital, patient, and visit characteristics. Selected trends in ED utilization from 1992 through 2002 are also presented.

Methods—The data presented in this report were collected from the 2002 National Hospital Ambulatory Medical Care Survey (NHAMCS). NHAMCS is part of the ambulatory care component of the National Health Care Survey that measures health care utilization across various types of providers. NHAMCS is a national probability sample survey of visits to emergency and outpatient departments of non-Federal, short-stay, and general hospitals in the United States. Sample data are weighted to produce annual national estimates.

Results—During 2002, an estimated 110.2 million visits were made to hospital EDs, about 38.9 visits per 100 persons. From 1992 through 2002, an increasing trend in the ED utilization rate was observed for persons over 44 years of age. In 2002, abdominal pain, chest pain, fever, and cough were the leading patient complaints accounting for nearly one-fifth of all visits. Acute upper respiratory infection was the leading illness-related diagnosis at ED visits. From 1992 through 2002, decreases in ED visit rates were observed for intracranial injuries in children, and increases were found for depression in young adults and arthropathies among middle-aged and elderly patients. There were an estimated 39.2 million injury-related visits during 2002, or 13.8 visits per 100 persons. Diagnostic/screening services, procedures, and medications were provided at 86.8 percent, 43.2 percent, and 75.8 percent of visits, respectively. In 2002, approximately 12 percent of ED visits resulted in hospital admission. On average, patients spent 3.2 hours in the ED.

Keywords: emergency department visits • diagnoses • injury • medications • ICD–9–CM

Introduction

The National Hospital Ambulatory Medical Care Survey (NHAMCS) was inaugurated in 1992 to gather, analyze, and disseminate information about the health care provided by hospital emergency departments (EDs) and outpatient departments (OPDs). The NHAMCS is part of the ambulatory component of the National Health Care Survey, a family of surveys that measures health care utilization across various types of providers. More information about the National Health Care Survey can be found at the National Center for Health Statistics (NCHS) Internet address: www.cdc.gov/nchs.

Ambulatory medical care is the predominant method of providing health care services in the United States and occurs in a wide range of settings. The largest proportion of ambulatory care services occurs in physician offices (1). Since 1973, NCHS has collected data on patient visits to physicians' offices

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through the National Ambulatory Medical Care Survey (NAMCS). However, visits to hospital EDs and OPDs, which represent a significant segment of ambulatory care visits, are not included in the NAMCS. Furthermore, hospital ambulatory patients are known to differ from office patients in certain demographic and medical characteristics (1). EDs account for approximately 10 percent of all ambulatory medical care visits in the United States (1).

The primary role of the ED is the treatment of seriously ill and injured patients. However, the ED provides a significant amount of unscheduled urgent care, often because there is inadequate capacity for this care in other parts of the health care system. The ED also serves as a referral site for other providers to evaluate and stabilize patients and admit them if necessary (2). EDs have reported being under increasing pressure to provide care for more patients, which has resulted in crowding. A recent report by the General Accounting Office found three indicators that crowding is occurring: the number of hours that an ED is on ambulance diversion; the proportion of patients and length of time that patients ''board'' in the ED; and the proportion of patients who leave the ED before receiving a medical evaluation, usually because they tire of waiting. A key indicator contributing to crowding is the inability to move patients out of EDs and into inpatient beds (3). Monitoring trends in ED utilization on a national level can provide insight into this major health care problem.

This report presents data from the 2002 NHAMCS, a nationally representative survey of hospital ED utilization. Hospital, patient, and visit characteristics are described. In addition, data on selected ED utilization trends from 1992 through 2002 are presented. Other *Advance Data* reports highlight visits to OPDs (4) and physician offices (5). More detailed information on 1992–99 ED trend data was published in a separate report (6).

Data highlights

- From 1992 through 2002, the number of ED visits increased from 89.8 million to 110.2 million visits annually (up 23 percent). This represents an average increase of almost 2 million visits per year. The number of hospital EDs in the United States decreased by about 15 percent during the same period.
- Approximately 60 percent of all hospital EDs were located in metropolitan statistical areas (MSAs), but they represented 80.9 percent of the annual ED encounters.
- The overall ED utilization rate per population increased by 9 percent from 35.7 visits per 100 persons in 1992 to 38.9 visits per 100 persons in 2002.
- In nearly 1 out of every 100 ED visits, the patient required immediate attention (e.g., unconscious or required resuscitation efforts).
- At about 3.5 million visits (3.1 percent), patients had been seen in the ED within the last 72 hours, and 5.5 percent of all visits were for followup of the same problem.
- Abdominal pain, chest pain, and fever were the most commonly recorded principal reasons for visit.
- The most frequently reported primary diagnoses were contusions, acute upper respiratory infections, open wounds (excluding head), and abdominal pain.
- From 1992 through 2002, visit rates for intracranial injuries among children under 18 years decreased by 75 percent. During the same period, visit rates for depression among persons 18–44 years increased by 106 percent and arthropathies among persons 45–64 years and 65 years and over increased by 130 percent and 87 percent, respectively.
- Injury, poisoning, and adverse effects of medical treatment accounted for 35.5 percent of ED visits. Falls, being struck by or striking against, and motor vehicle traffic incidents were the leading causes of injuries presenting to the ED, accounting for about 40 percent of such visits.
- Diagnostic/screening services and procedures were provided at 86.8 and 43.2 percent of visits, respectively. Imaging was provided at 40.7 percent of visits.
- Medications were provided at 75.8 percent of visits, and narcotic analgesics accounted for 14.1 percent of the medications mentioned. From 1996 though 2002, the use of penicillins decreased by 20 percent, and the use of quinolones increased by 171 percent.
- The patient was referred to another physician or clinic for followup at 44.6 percent of visits; at 38.9 percent of visits, patients were told to return if needed or were given an ED appointment; and at 12.2 percent of visits, patients were admitted to the hospital.
- The duration for two-thirds of ED visits was between 1 and 6 hours. On average, patients spent 3.2 hours in the ED.

Methods

The data presented in this report are from the 2002 NHAMCS, a national probability sample survey conducted by the Centers for Disease Control and Prevention's Division of Health Care Statistics of the National Center for Health Statistics. The survey was conducted from December 31, 2001, through December 29, 2002.

The target universe of the NHAMCS is in-person visits made in the United States to EDs and OPDs of non-Federal, short-stay hospitals (hospitals with an average stay of less than 30 days) or those whose specialty is general (medical or surgical) or children's general. The hospital sampling frame consisted of hospitals listed in the 1991 SMG Hospital Database updated using the 2000 SMG Hospital Database to allow the inclusion of hospitals that opened or changed their eligibility status since the previous sample in 1991.

A four-stage probability sample design is used in the NHAMCS (7). The design involves samples of primary sampling units (PSUs), hospitals within PSUs, EDs within hospitals and/or clinics within outpatient departments, and patient visits within EDs and/or clinics. The PSU sample consists of 112

PSUs that comprise a probability subsample of the PSUs used in the 1985–94 National Health Interview Survey. A sample of 481 hospitals was selected for the 2002 NHAMCS, of which 396 had eligible EDs. Of the 396 eligible EDs, 376 participated in the NHAMCS for an unweighted ED participation rate of 94.9 percent of eligible (see "Technical Notes" for details). Hospital staff were asked to complete Patient Record forms (see figure I in the "Technical Notes") for a systematic random sample of patient visits occurring during a randomly assigned 4-week reporting period. The number of Patient Record forms completed for EDs was 37,337. Starting in 2001, sampling procedures were changed to target approximately 100 sample visits rather than 50 visits for each participating ED. The increased visit base led to increased precision for most estimates.

Because the estimates presented in this report are based on a sample rather than on the entire universe of ED visits, they are subject to sampling variability. The "Technical Notes" at the end of this report include an explanation of sampling errors with guidelines for judging the precision of the estimates. The standard errors reported here are calculated using Taylor approximations in SUDAAN, which take into account the complex sample design of the NHAMCS (8). Standard errors are provided in the text, if the data are not presented in the tables. Data on selected ED utilization trends for 1992 through 2002 are presented. A weighted least-squares regression analysis was used to determine the significance of trends at the 0.05 level.

The U.S. Census Bureau was responsible for data collection, and data processing operations and medical coding were performed by Constella Group Inc., Durham, North Carolina. As part of the quality assurance procedure, a 10-percent quality control sample of survey records was independently keyed and coded. Coding error rates ranged between 0.0 and 0.8 percent for various survey items.

Several of the tables in this report present rates of ED visits per population. The population figures used in calculating these rates are based on U.S. Census Bureau monthly postcensal estimates of the civilian noninstitutional population of the United States as of July 1, 2002. These population estimates are based on postcensal estimates from Census 2000 and are available from the Census Bureau. See the "Technical Notes" for more information about the effects of the change from 1990-based to 2000-based denominators on trends in population rates. Estimates presented in the tables and figure for specific race categories reflect visits where only a single race was reported. See the "Technical Notes" for more detail on race estimates.

Results

The ED utilization rate rose from 35.7 visits per 100 persons in 1992 to 38.9 visits per 100 persons in 2002 (up 9 percent) and was driven by increased use among persons 45 years of age and over (figure 1). The annual number of ED visits increased from 89.8 million to 110.2 million visits (up 23 percent). This represents an average increase of almost 2 million visits per year. On an average day in 2002, there were more than 300,000 visits to the emergency department (ED). Because of hospitals either closing their EDs or going out of business, the number of operating EDs decreased by about 15 percent between 1992 and 2002 (9), resulting in those EDs still open taking on an increasingly larger volume of patient encounters. Increased volume of ED visits can lead to longer waiting times for nonurgent visits (10) and increased occurrence of ambulance diversion (11).

Patient characteristics

The average age of patients seen in the ED was 35.6 (SE = 0.6). There has been an 8 percent increase in mean age since 1992 (33.0, SE=0.6). ED visits by patient's age, sex, and race are shown in table 1. Persons 75 years of age and over had the highest ED visit rate (61.1 visits per 100 persons). Females had a higher visit rate (41.1 per 100 persons) than males (36.6 per 100 persons); 46.3 percent of these visits being made by women in the 15–44-year-old age group. The ED utilization rate for black or African American persons was almost double the rate for white persons (figure 2). Significant differences were observed by race in all age groups. ED visits rates for Asians were lower than for white persons or black or African American persons.

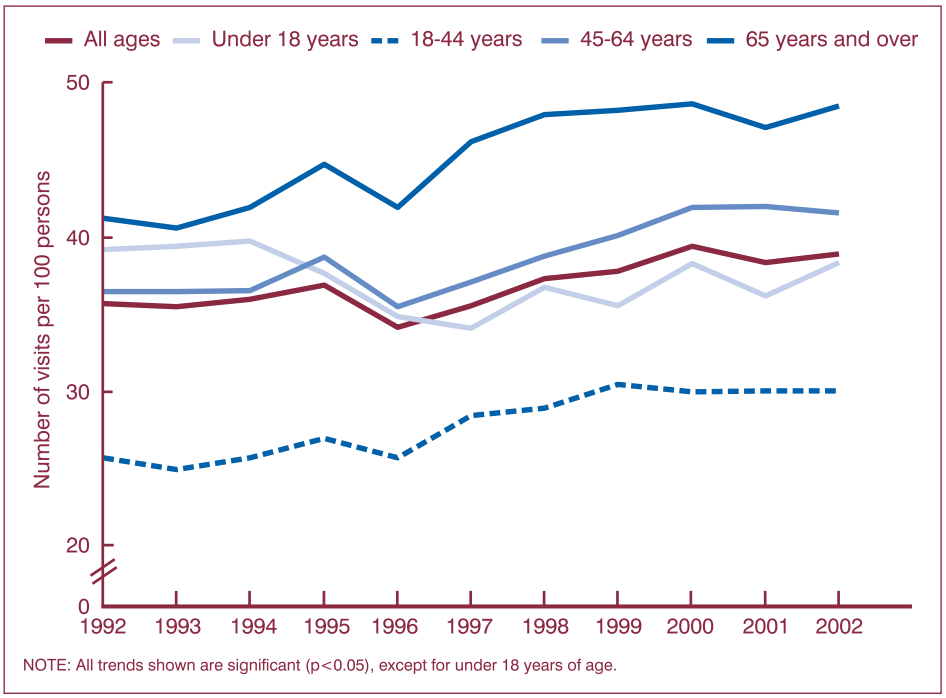

Figure 1. Trends in emergency department visit rates by age: United States, 1992–2002

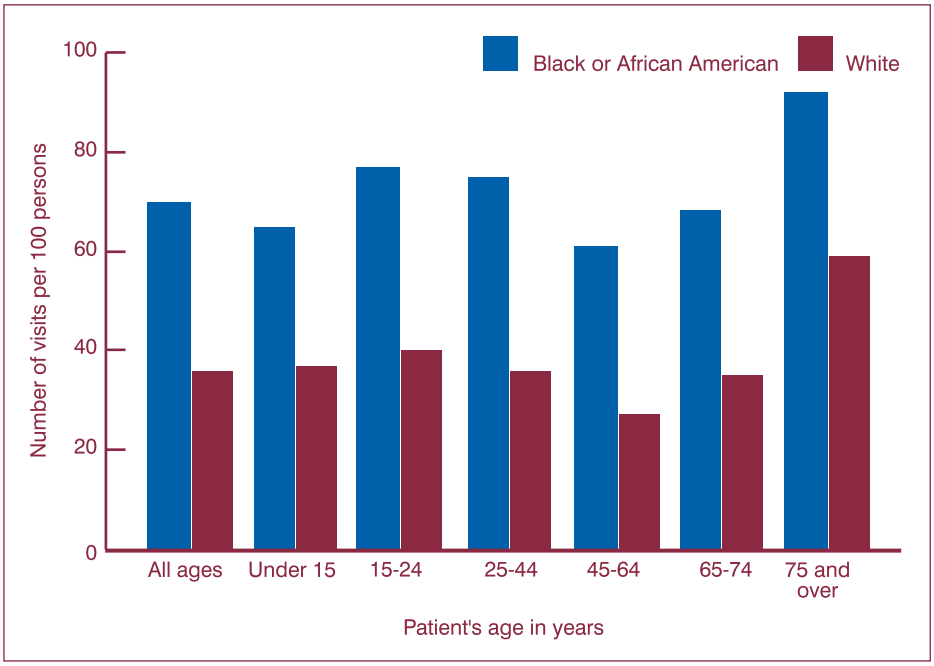

Figure 2. Annual rate of emergency department visits by patient's age and race: United States, 2002

Hospital characteristics

Ownership—About 70 percent of ED visits were made to voluntary nonprofit hospitals (table 1). The percent of visits made to non-Federal government (i.e., State, county, city) and proprietary hospitals were 18.4 percent and 11.8 percent, respectively.

Geographic region—The visit rate was higher in the South (45.1 visits per 100 persons) than in the West (30.5 visits per 100 persons). A higher proportion of ED visits occurred in the South (41.3 percent) than in the three other regions (table 1). The percent of visits in the Midwest (23.6 percent) was greater than in the Northeast (17.2 percent).

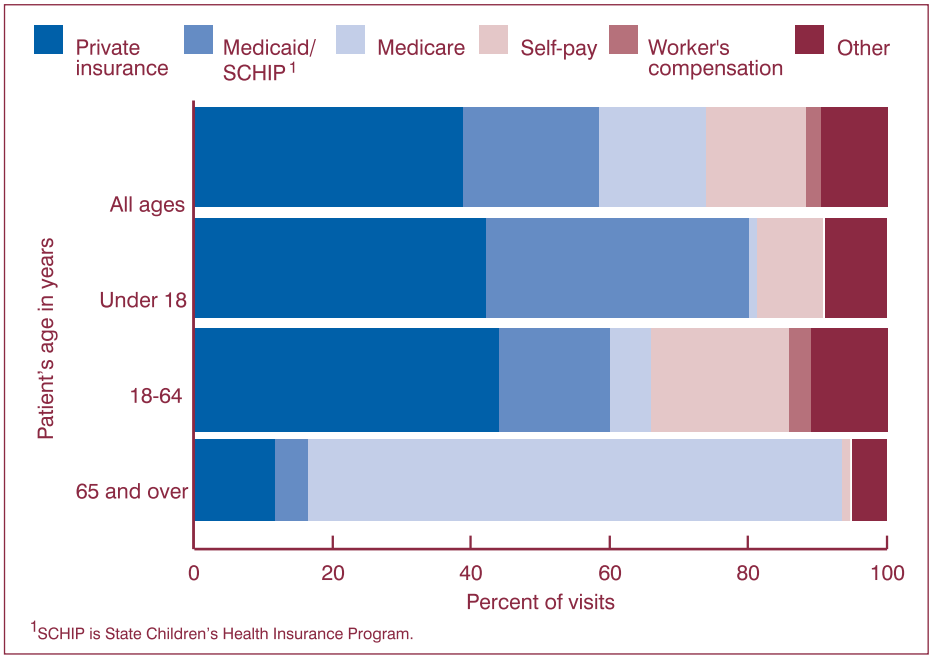

Figure 3. Percent distribution of emergency department visits by primary expected source of payment, according to patient's age: United States, 2002

Visit characteristics

Primary expected source of payment—Private insurance was listed as the dominant expected source of payment, accounting for 38.9 percent of ED visits (table 2). Medicaid/State Children's Health Insurance Program (SCHIP) (19.7 percent), Medicare (15.4 percent), and self-payment (which does not include patient copayments and deductibles) (14.5 percent) were also prominent. About 2 percent of ED visits cited worker's compensation as the primary expected source of payment. Payment mechanism varied by patient age as shown in figure 3. Private insurance was the leading primary expected source of payment reported for persons under 65 years of age, and Medicare was most commonly recorded for persons aged 65 years and over. The visit rate for Medicaid patients (65.4 per 100 persons, SE=4.5) was higher than those with Medicare (44.1 per 100 persons, SE=2.0), no insurance (39.2 per 100 persons, SE=2.4), and private insurance (21.5 per 100 persons, SE=1.0).

Immediacy with which patient should be seen—The level of immediacy is assigned upon arrival at the ED by triage staff for those EDs that conduct triage. The NHAMCS item categorized immediacy into four groups: emergent (less than 15 minutes), urgent (15–60 minutes), semiurgent (1–2 hours), and nonurgent (2–24 hours). For 14.8 percent of ED visits, the hospital staff recorded this item as "unknown or no triage." About 919,000 visits (0.8 percent) were made by patients who required immediate attention (i.e., unconscious or needed resuscitation). See the "Technical Notes" for the definition of resuscitative visits.

As shown in figure 4, 22.3 percent of ED visits were classified as emergent, 34.2 percent were urgent, 18.5 percent were semiurgent, and 10.2 percent were nonurgent. Data on urgency by patient and visit characteristics are presented in table 3. Persons 75 years of age and over had a higher proportion of

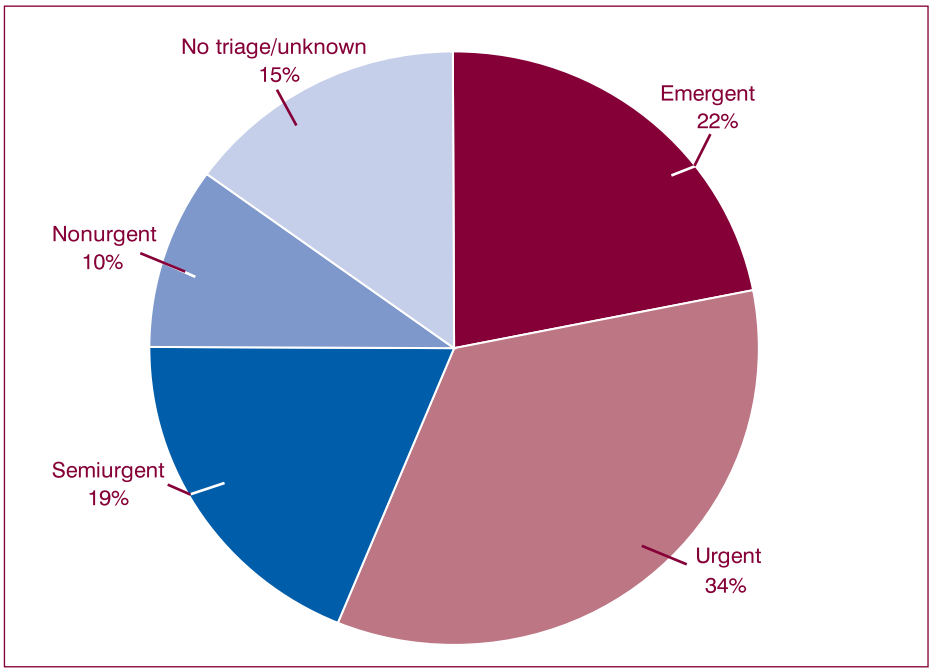

Figure 4. Percent distribution of emergency department visits according to immediacy with which the patient should be seen: United States, 2002

emergent visits compared with all other age groups except persons 65–74 years of age. Together, emergent and urgent visits accounted for 56.5 percent of all ED visits. A higher proportion of Medicaid visits were nonurgent (13.5 percent) compared with Medicare visits (3.9 percent).

Arrival time of visit—Figure 5 shows the distribution of ED arrival times by illness and injury. Injury visits were more likely to occur in the early evening than illness visits.

Data in figure 6 indicate that illness visits peaked on Monday and then declined throughout the week, and the distribution of injury visits was more even. Medicare patients were more likely to visit the ED on a Monday than on the weekend in contrast to Medicaid patients and those with private insurance (figure 7).

Initial vital signs—Table 4 presents the mean for temperature, pulse, and systolic and diastolic blood pressures along with the 25th percentile, median, and 75th percentile to indicate the range in the estimates. The mean temperature for visits where the reason for visit was fever was 100.6˚F/38.1˚C. The overall means for systolic and diastolic blood pressures for visits with a diagnosis of hypertension were 163.5 and 90.0 mmHg, respectively.

Patient's principal reason for visit—The principal reason is the main complaint, symptom, or reason the patient came to the ED. Up to three reasons for visit were coded according to *A Reason for Visit Classification for Ambulatory Care* (RVC) (12). The RVC is a classification scheme developed by NCHS that has been used for over 20 years to code patients' complaints or reasons for seeking care. It is divided into eight modules or groups of reasons as shown in table 5 and includes all the reasons for which patients see their health care provider. This includes symptoms, followup for prior diagnoses, routine examinations and screening, treatment for conditions and operations, various therapies, and injuries. The symptoms module is further divided into symptoms that refer to specific body systems, such as respiratory or

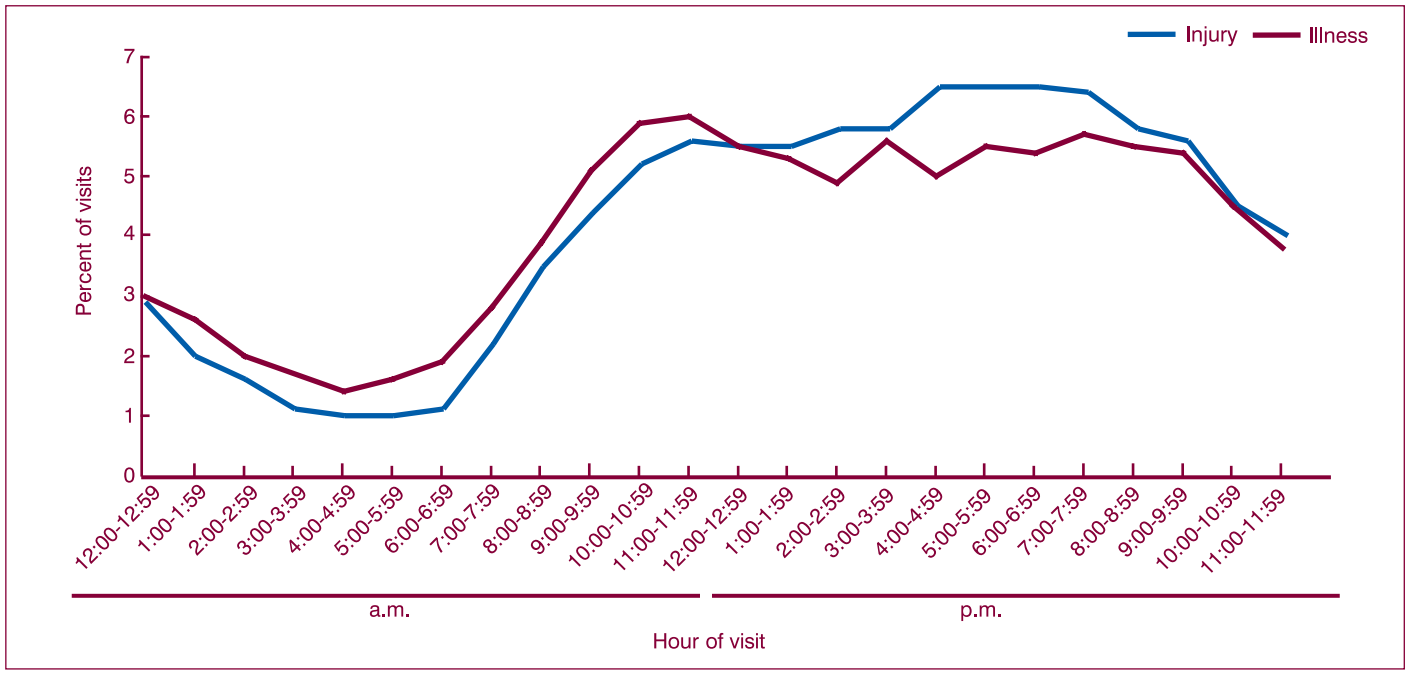

Figure 5. Percent distribution of emergency department visits according to hour of visit: United States, 2002

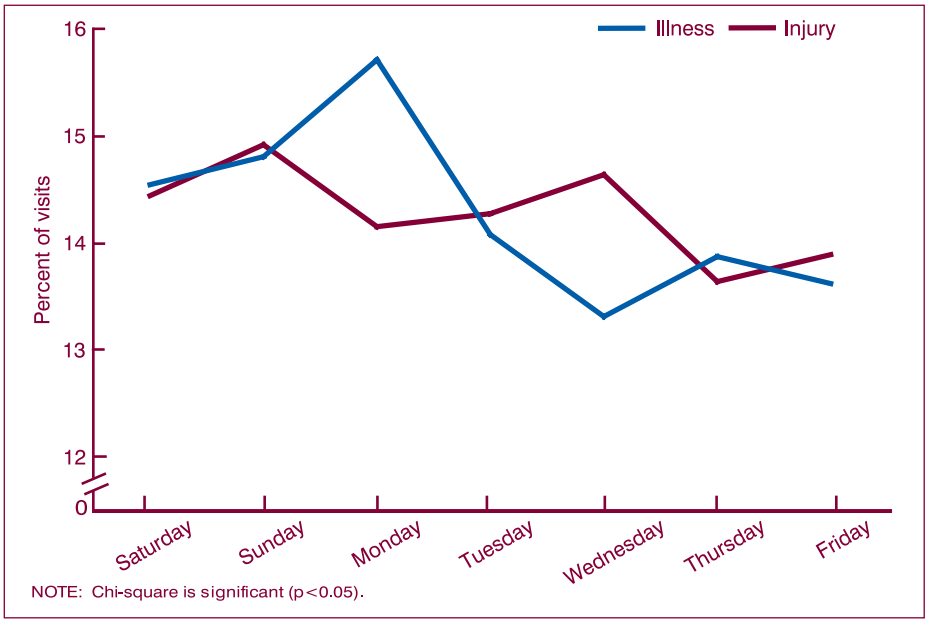

Figure 6. Percent distribution of emergency department visits by day of week, according to illness or injury: United States, 2002

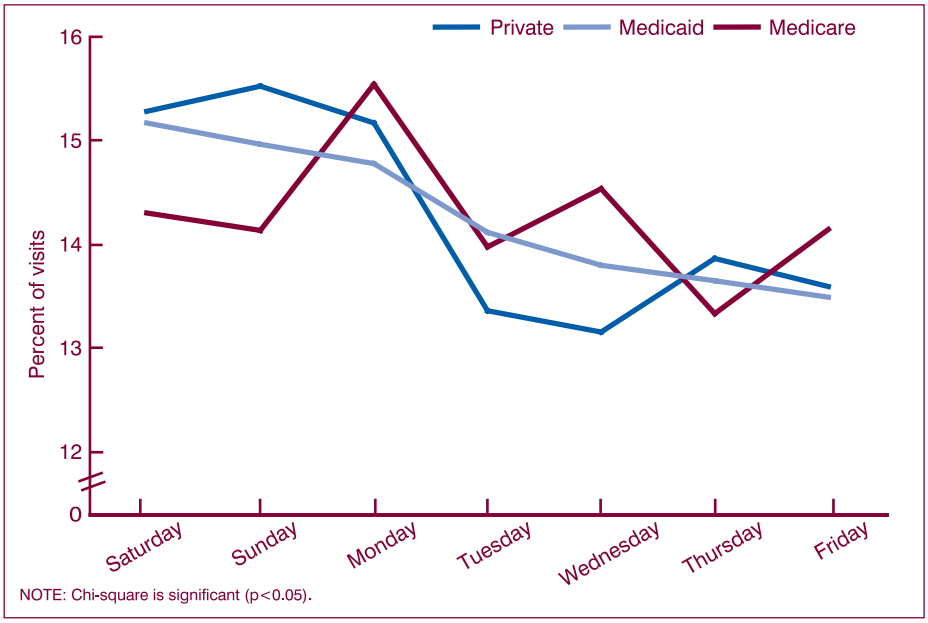

Figure 7. Percent distribution of emergency department visits by day of week, according to expected source of payment: United States, 2002

cardiovascular and lymphatic. Each reason is assigned a 3- or 4-digit classification code (for example, S260- "Abnormal pulsations and palpitations," is further detailed to S260.1- "Increased heartbeat," S260.2- "Decreased heartbeat," and S260.3- "Irregular heartbeat").

In 2002, about 72 percent of ED visits were made for reasons classified in the symptom module. Within this module, general symptoms such as fever, fatigue, and pain accounted for 15.9 percent of the total (table 5). Digestive symptoms accounted for 13.1 percent of visits, and musculoskeletal and respiratory symptoms were recorded at 12.9 and 12.0 percent of visits, respectively. The 20 most frequently mentioned principal reasons for visit, representing almost one-half of all visits, are shown in table 6. Stomach and abdominal pain, cramps, and spasms were reported most frequently, accounting for 6.5 percent of all ED visits. Chest pain and fever accounted for 5.1 and 4.8 percent of visits, respectively. Laceration and cuts of the upper extremity was the most frequently mentioned reason for visit in the injury module (2.0 percent). It should be noted that estimates differing in ranked order may not be significantly different from each other.

Although there is a separate item on the Patient Record form to indicate whether the visit was alcohol related, sometimes an alcohol-related reason for visit is specified or an alcohol-related diagnosis is rendered without the alcohol item being checked. Using the checkbox alone provides an estimate of about 2.5 million visits (2.3 percent, SE=0.1) as being related to either the patient's use of alcohol, another person's use of alcohol, or both (data not shown). However, when both the checkbox and any alcohol-related reasons for visit or diagnoses were used, then the estimate increases to 3.2 million visits (2.9 percent, SE=0.1). This provides a better indicator that the visit involves alcohol than using the reason-for-visit module, *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (13) diagnosis, or the unedited alcohol item alone. This alcohol checkbox was marked "unknown" or left blank for 9.9 percent of visits.

Prior ED visit—The survey collected two items designed to measure prior use of the ED—whether the patient had been seen in the ED in the past 72 hours and whether the sampled visit was for followup. At 3.1 percent of visits, the patient had been seen in the ED within the past 72 hours (table 7). This percent did not vary by age, race, sex, type of payment, injury or illness, or disposition. For about 89 percent of visits, this ED visit was the initial visit for the patient's problem, and for 5.5 percent it was a followup visit. For 2.4 percent of visits, nursing home or

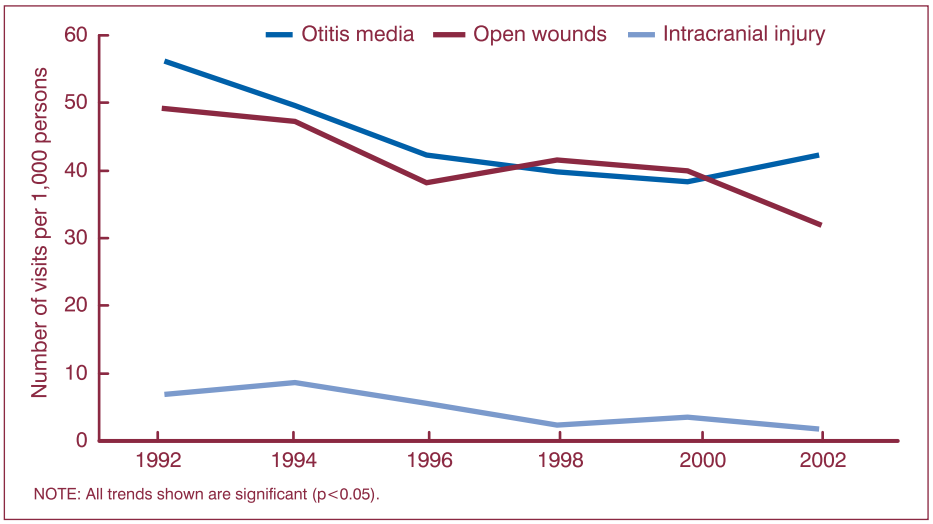

Figure 8. Annual rate of emergency department visits for persons under 18 years of age by selected diagnosis groups: United States, 1992–2002

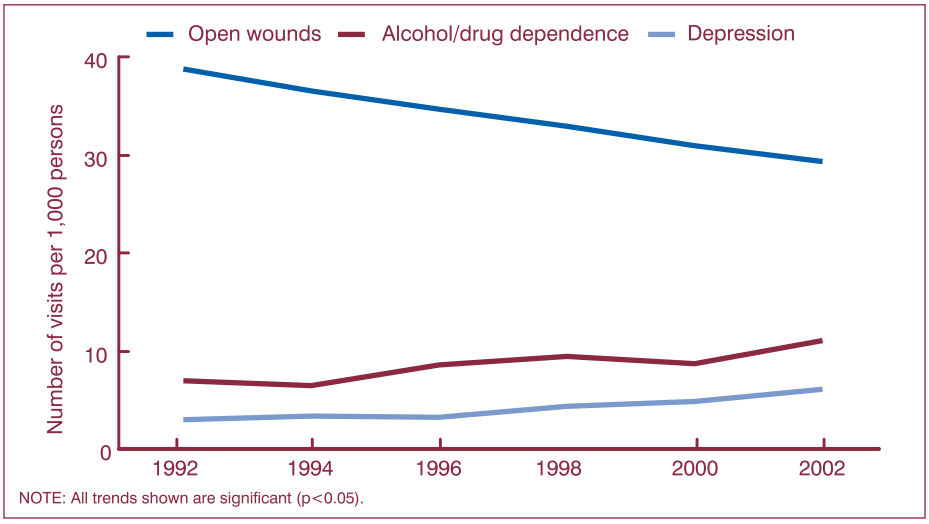

Figure 9. Annual rate of emergency department visits for persons 18–44 years of age by selected diagnosis groups: United States, 1992–2002

other institution was recorded as the patient's residence, and the mean age for these visits was 69.3 years (SE=1.1).

Primary diagnosis—Hospital staff were asked to record the primary diagnosis or problem associated with the patient's most important reason for the current visit and any other significant current diagnoses. Up to three diagnoses were coded according to the ICD–9–CM (13). Displayed in table 8 are ED visits by primary diagnosis using the major disease categories specified by the ICD–9–CM. Injury and poisoning diagnoses accounted for 26.1 percent of all visits, and symptoms, signs, and ill-defined conditions and diseases of the respiratory system accounted for 17.8 percent and 11.8 percent, respectively. The most frequently reported primary diagnoses for 2002 are shown in table 9. Contusion leads the list (4.3 percent) followed by acute upper respiratory infection, excluding pharyngitis (4.0 percent); open wound, excluding head (3.8 percent); abdominal pain (3.7 percent); and chest pain (3.4 percent).

Trends in ED visit rates from 1992–2002 for selected diagnosis groups were examined among four age groups: under 18 years, 18–44 years, 45–64 years, and 65 years and over. For children and adolescents under 18 years of age, decreasing trends were observed for intracranial injuries (down by 75 percent), open wounds (down by 35 percent), and otitis media (down by 25 percent) (figure 8). Among adults aged 18–44 years, increasing trends were found for depression (up by 106 percent) and substance abuse (up by 58 percent), while the visit rate declined for open wounds (down by 24 percent) (figure 9). For middle-aged adults 45–64 years, increasing trends were observed for arthropathies (up by 130 percent), diabetes mellitus (up by 112 percent), spinal disorders (up by 67 percent), and sprains and strains (up by 35 percent) (figure 10). For seniors aged 65 years and over, visit rates for arthropathies (up by 87 percent), diabetes mellitus (up by 84 percent), stroke (up by 45 percent), and spinal disorders (up by 29 percent) rose over the 11-year period (figure 11). A description of the ICD–9–CM re-codes used to create the various diagnosis groups investigated is provided in the "Technical Notes." Only diseases and injuries for which significant trends were found are shown in the figures.

Injury- or poisoning-related visits—Because EDs are used primarily to treat acute medical problems and severe injuries, it is helpful to determine whether cases are for illness or injury. Although there is a separate item on the Patient Record form to indicate whether the visit was for an injury or poisoning or adverse effect of medical treatment, sometimes an injury reason for visit is specified or an injury diagnosis is rendered without the injury item being checked. Therefore, the visit is counted as an injury visit and the checkbox is coded to "yes" if any of the three reasons for visit were in the injury module or any of the three diagnoses were in the injury or poisoning chapter of the ICD–9–CM (13). This provides a better indicator that the visit involved an injury than using the reason-for-visit module, ICD–9–CM injury diagnosis, or the unedited injury item alone.

Approximately 39.2 million ED visits were made for injury or poisoning, which represented 35.5 percent of all ED visits. There were 13.8 injury- or poisoning-related visits per 100 persons (table 10). Seventy-two percent of all injury visits occurred among persons younger than 45 years of age. Persons 15–24 years of age had a higher injury-related visit rate (18.2 visits per

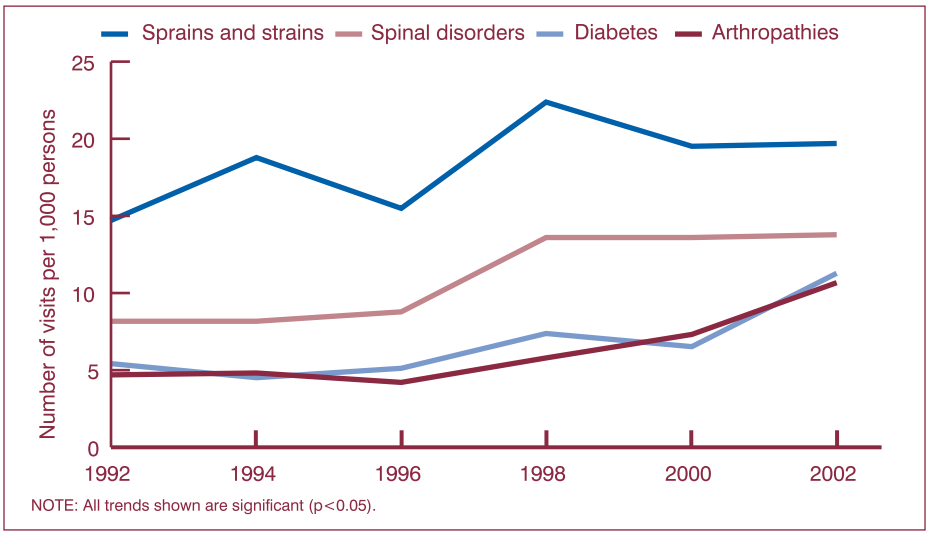

Figure 10. Annual rate of emergency department visits for persons 45–64 years of age by selected diagnosis groups: United States, 1992–2002

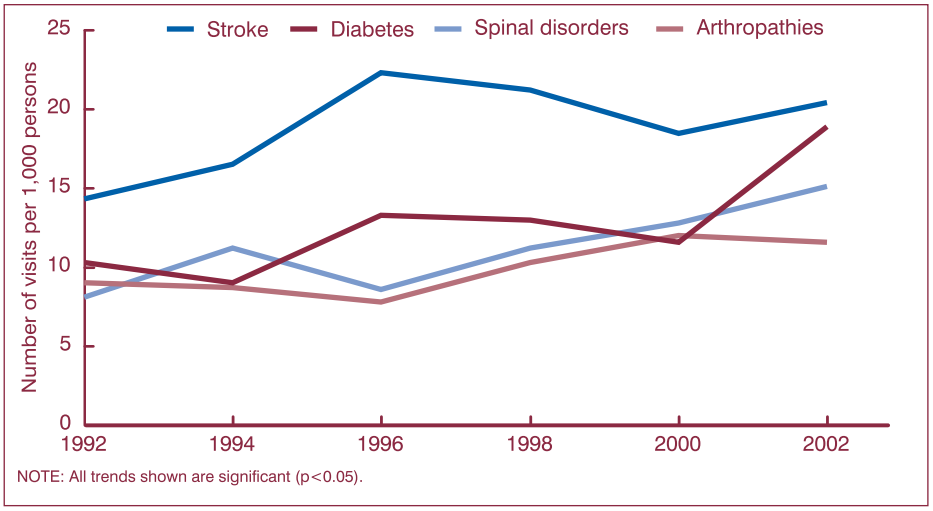

Figure 11. Annual rate of emergency department visits for persons 65 years of age and over by selected diagnosis groups: United States, 1992–2002

100 persons) than persons in the other age groups except for those 75 years and over. Males had a higher injury-related visit rate than females overall and for all age groups under 45 years. The injury-related visit rate for black or African American persons was higher than for white persons with the overall rate for the former being driven by visits among persons 25–64 years of age. Using the alcohol checkbox alone, about 5.4 percent (SE=0.3) of injury-related visits were alcohol related and 5.7 percent (SE=0.3) when the alcohol-related reason for visit and diagnosis items were also used. Among alcohol-related visits using the checkbox alone, 84.7 percent (SE=1.7) were injury related. However, the proportion decreased to 69.1 percent (SE=1.7) when the alcohol-related reason for visit and diagnosis items were also used (data not shown).

Table 11 displays data on injury-related ED visits by whether the injury was intentional, work related, or related to an adverse drug event. Hospital staff were instructed to mark "Yes" if a prescription, over-the-counter medication, or illegal drug was involved in an adverse drug event (e.g., allergy, overdose, medication error, drug interaction) for the patient. Adverse drug event visits in this report include mentions of alcohol only although the instructions were to record alcohol if the visit was due to a drug-alcohol interaction. At least one adverse drug event was reported at 7.1 percent of injury visits, and drug interactions occurred at 1.2 percent of visits. Adverse drug events were more frequent among persons 18–64 years of age than among any other age group. Approximately 6 percent of injuries were intentional. Of these injuries, 58.0 percent were the result of an assault and 42.0 percent were self-inflicted. About 12 percent of injury-related ED visits made by persons 18–64 years were related to work. There were high levels of missing data (28.2 percent) regarding whether the injury was work related. A work-related injury is defined as an injury that happened while the patient was engaged in work activities occurring on or off the employer's premises.

Table 12 shows ED visits by the intent and mechanism of the first-listed external cause-of-injury codes (E-codes). Up to three external causes of injury were coded according to the *Supplementary Classification of External Causes of Injury and Poisoning* in the ICD–9–CM (13). External cause was not provided for 22.7 percent of injury visits. About 68 percent of injury-related visits were due to an unintentional injury. The reader should keep in mind that the results regarding intentionality of the injury in table 12 will vary from those in table 11. In table 11, intentionality of the injury is based on responses to the checkbox item on the Patient Record form, rather than on the ICD–9–CM groupings used in table 12. Discrepancies may arise in respondent interpretation of intent. For example, in some cases, hospital staff checked the "assault" category for dog bite injuries. However, dog bites are an unintentional injury based on the ICD–9–CM E-codes.

Unintentional injuries due to falls (18.0 percent), striking against or being struck accidentally by objects or persons (11.5 percent), and motor vehicle traffic-related injuries (10.8 percent) accounted for the largest proportion of injury-related ED visits. About 4 percent of injury-related ED visits were due to assaults. An unarmed fight or brawl was the leading reason for assault-related

injuries (2.2 percent). Self-inflicted injuries resulted in about a half million ED visits (1.3 percent) with poisoning being the most frequent cause (1.0 percent). Approximately 1.4 million ED visits were for adverse effects of medical treatment or surgical procedures and represented 3.5 percent of injury- or poisoning-related ED visits. This included adverse drug reactions and complications from surgical and medical procedures.

When examining the leading causes of injury recorded for visits where the patient presented with an adverse drug event based on item 4d, most were due to alcohol and/or drug use (42.3 percent, SE=2.2) followed by adverse effects of prescribed medications (18.4 percent, SE=1.8), unintentional poisoning (12.3 percent, SE=1.3), self-inflicted overdose (12.1 percent, SE=1.6), motor vehicle traffic crashes (2.8 percent, SE=0.7), and assault-related reasons (2.8 percent, SE=0.6).

The Barell Injury Diagnosis Matrix: Classification of Region of Body and Nature of Injury was used in table 13 to show the distribution of injury-related visits by body site of primary diagnosis (14). A detailed description of the ICD–9–CM codes used to create the body site of primary diagnosis reclassification coding is provided in the "Technical Notes." The most commonly mentioned body site was hand, wrist, and fingers (12.2 percent) followed by face (4.8 percent) and lower leg and ankle (4.5 percent).

Diagnostic and screening services—Diagnostic and screening services were ordered or provided by hospital staff at 86.8 percent of ED visits. Frequently mentioned services included medical screening exam (62.9 percent), complete blood count (CBC) (30.4 percent), pulse oximetry (19.1 percent), "other blood chemistry" (17.6 percent), chest x ray (18.5 percent), and urinalysis (16.1 percent) (table 14). Imaging was provided at 40.7 percent of visits. Note that for items related to diagnostic and screening services, procedures, providers seen, and disposition, hospital staff were asked to check all of the applicable categories for each item. Therefore, multiple responses could be coded for each visit. About 12 percent of ED visits had no diagnostic or screening services.

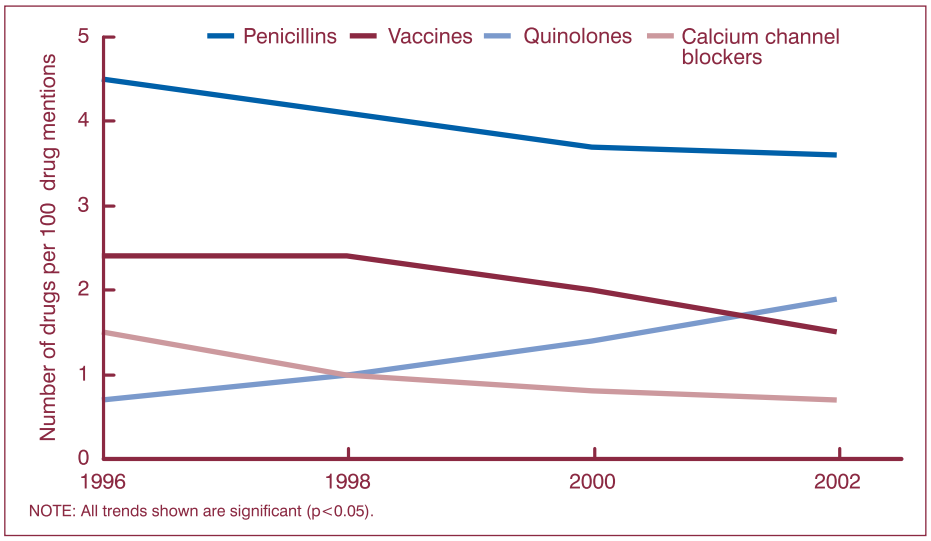

Figure 12. Annual drug utilization rate for selected therapeutic classes at emergency department visits: United States, 1996–2002

Procedures—Procedures were provided at 43.2 percent of ED visits. For visits with procedures, 84.8 percent had only one procedure recorded. The most frequently mentioned procedures were the administration of intravenous fluids (20.4 percent), wound care (10.1 percent), and orthopedic care (5.2 percent) (table 15).

Medication therapy—Hospital staff were instructed to record all new or continued medications ordered, supplied, or administered at the visit. This included prescription and nonprescription preparations, immunizations, desensitizing agents, and anesthetics. Up to six medications, referred to in this survey as drug mentions, were coded per visit according to a classification system developed at NCHS. A report describing the method and instruments used to collect and process drug information is available (15). As used in the NHAMCS, the term "drug" is interchangeable with the term "medication." The term "prescribing" is used broadly to mean ordering or providing any medication, whether prescription or over-the-counter. Visits with one or more drug mentions are termed "drug visits" in the NHAMCS.

There were 196.0 million drugs mentioned at ED visits during 2002. Medications were used at 75.8 percent of all ED visits (table 16). There was an average of 1.8 drug mentions per ED visit compared with a rate of 1.3 in 1992. For visits where medications were mentioned, there was an average of 2.3 drugs provided per visit.

Drug mentions are shown by therapeutic subclasses in table 17. This classification is based on the 4-digit therapeutic categories used in the *National Drug Code Directory*, 1995 edition (16). Drugs may have more than one therapeutic application, and in the NHAMCS up to three therapeutic drug classes are recorded for each drug. Prior to 2002, a drug was classified under its primary therapeutic use and data were presented for 2-digit therapeutic classification codes. Beginning in 2002, drug data are being shown for up to three therapeutic subclassifications at the 4-digit level. The leading drug subclasses in 2002 were narcotic analgesics (14.1 percent) and nonsteroidal anti-inflammatory agents (12.3 percent). From 1996 through 2002, there was a 171 percent rise in the use of quinolones, which are newer, more expensive, and have a broader spectrum than penicillins, which declined by 20 percent (figure 12). Decreasing use was observed for calcium channel blockers (down by 53 percent) and vaccines (down by 38 percent). The 20 most frequently used generic substances for 2002 are shown in table 18. Drug products containing more than one

ingredient (combination products) are included in the data for each ingredient. For example, acetaminophen with codeine is included in both the count for acetaminophen and the count for codeine. The most frequently occurring generic substances in drugs mentioned at ED visits were acetaminophen, ibuprofen, hydrocodone bitartrate, and promethazine.

The 20 most frequently mentioned medications are shown in table 19 according to the name written on the ED Patient Record form by hospital staff. This could be a brand name, generic name, or therapeutic effect. Tylenol, which is classified as a nonnarcotic analgesic and antipyretic, was the drug most frequently mentioned, accounting for 5.3 percent of all ED drug mentions. Motrin, which is classified as an NSAID and antiarthritic, was listed for 4.6 percent of ED drug mentions. Other most frequent drug mentions were Phenergan (4.0 percent), Vicodin (3.6 percent), and Toradol (3.0 percent).

Providers seen—Staff were asked to check all of the providers seen during the visit. Multiple responses could be coded per visit. A physician was seen at 93.5 percent of visits, and a registered nurse attended the patient at 88.5 percent of ED visits (table 20). A resident and/or intern was seen at 8.9 percent of visits. For 9.0 percent of visits, a physician other than a staff physician or a resident and/or intern was seen. At 6.5 percent of visits, the patient was not attended by a physician. The provider item was not checked for 1.5 percent of visits.

Visit disposition—Staff were asked to record visit disposition and instructed that multiple responses could be coded for this item. About 45 percent of ED visits resulted in a referral to another physician or clinic for followup (table 21). For 38.9 percent of visits, patients were told to return to the ED if needed or by appointment. Patients were told to return to the referring physician at 17.0 percent of visits. About 12 percent of ED visits resulted in hospital admission. This included direct admission to the intensive care unit, critical care unit, or coronary care unit, which occurred in about 1 out of 10 admissions. Patients were admitted to a 23-hour observation unit at less than 1 percent of visits. For 8.4 percent of ED visits, no followup was planned. The patient left before being seen by a physician or against medical advice or was referred out from triage at 2.9 percent of visits. At less than 1 percent of visits, the patient was referred to an alcohol or drug treatment program or advised to return to nonphysician treatment or a support service.

Duration in emergency department—Duration in the ED was determined by calculating the difference between time of arrival and time of discharge. The duration for 66.7 percent of ED visits was between 1 and 6 hours (table 22). On average, patients spent 3.2 hours in the emergency department.

Hospital ED-level estimates

Hospital ED-level estimates are shown in table 23. About 97 percent of EDs were associated with a general hospital and 93.5 percent had only one emergency service area. Hospitals in metropolitan statistical areas (MSAs) tended to have a larger volume of ED visits than those in non-MSAs. Approximately 60 percent of all hospital EDs were located in MSAs, but they represented 80.9 percent of the annual ED encounters. However, the ED utilization rate per 100 persons did not vary by the MSA status of the hospital (table 1). Only 28.2 percent of hospital EDs were affiliated with medical schools, but they accounted for 42.4 percent of all visits.

Questions from the hospital induction interview were analyzed by ED size (small, medium, and large). In 2002, about 53 percent of all hospital EDs had annual visit volumes less than 20,000 visits, and 14.0 percent had volumes greater than 50,000 visits. ED size was found to be associated with metropolitan status, ownership, automated drug dispensing system, board-certified emergency medicine physicians, and number of emergency service areas. Large EDs were more likely to have an automated drug dispensing system (67.4 percent) than small EDs (18.5 percent) with a national average of 40.3 percent. About 85 percent of large EDs had at least one board-certified emergency medicine physician on staff compared with small EDs (51.3 percent). About 48 percent of all hospitals with 24-hour EDs also had OPD clinics offering physician services as opposed to OPDs that only offer ancillary services such as radiology, laboratory, etc. ED size was not associated with the likelihood of having electronic patient medical records or a board-certified pediatric emergency medicine physician in the ED. Approximately one-third of hospitals had electronic patient records in the ED (32.3 percent), and 23.9 percent had emergency medicine pediatricians.

Additional information about ED utilization is available from the NCHS Ambulatory Health Care Web site: http://www.cdc.gov/nchs/about/major/ahcd/ahcd1.htm

Individual-year reports and public-use data files are available for download from the Web site. Data from the 2002 NHAMCS will also be available on a public-use data tape and CD-ROM. These and other products can be obtained by contacting the NCHS Ambulatory Care Statistics Branch at (301) 458-4600. Queries regarding NHAMCS data may be sent to NCHS via nchsquery@cdc.gov

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Table 1. Number, percent distribution, and annual rate of emergency department visits with corresponding standard errors, by selected patient and hospital characteristics: United States, 2002

Selected patient and hospital characteristics	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent	Number of visits per 100 persons per year[1,2]	Standard error of rate
All visits	110,155	4,416	100.0	. . .	38.9	1.6
Patient characteristics						
Age:						
Under 15 years	24,077	2,019	21.9	1.3	39.7	3.3
15–24 years	17,215	818	15.6	0.4	43.6	2.1
25–44 years	32,432	1,267	29.4	0.6	39.2	1.5
45–64 years	19,943	780	18.1	0.5	30.1	1.2
65–74 years	6,759	327	6.1	0.2	37.5	1.8
75 years and over	9,728	436	8.8	0.3	61.1	2.7
Sex and age:						
Female	59,594	2,395	54.1	0.4	41.1	1.7
Under 15 years	11,262	942	10.2	0.6	38.1	3.2
15–24 years	9,756	471	8.9	0.2	49.7	2.4
25–44 years	17,852	729	16.2	0.4	42.5	1.7
45–64 years	10,877	505	9.9	0.3	31.9	1.5
65–74 years	3,653	214	3.3	0.2	37.1	2.2
75 years and over	6,194	303	5.6	0.2	63.3	3.1
Male	50,561	2,096	45.9	0.4	36.6	1.5
Under 15 years	12,815	1,105	11.6	0.8	41.3	3.6
15–24 years	7,459	390	6.8	0.2	37.5	2.0
25–44 years	14,580	599	13.2	0.3	35.7	1.5
45–64 years	9,065	348	8.2	0.2	28.3	1.1
65–74 years	3,106	175	2.8	0.1	37.9	2.1
75 years and over	3,534	180	3.2	0.1	57.6	2.9
Race and age:[3]						
White	81,704	3,575	74.2	1.2	35.7	1.6
Under 15 years	16,952	1,445	15.4	1.0	36.6	3.1
15–24 years	12,323	621	11.2	0.3	39.9	2.0
25–44 years	23,612	1,062	21.4	0.5	35.6	1.6
45–64 years	14,980	639	13.6	0.4	27.0	1.2
65–74 years	5,427	296	4.9	0.2	34.8	1.9
75 years and over	8,410	397	7.6	0.3	59.1	2.8
Black or African American	24,861	1,632	22.6	1.2	70.3	4.6
Under 15 years	6,201	679	5.6	0.5	65.4	7.2
15–24 years	4,362	336	4.0	0.2	76.8	5.9
25–44 years	7,811	525	7.1	0.4	75.5	5.1
45–64 years	4,301	326	3.9	0.3	61.0	4.6
65–74 years	1,109	113	1.0	0.1	68.1	7.0
75 years and over	1,077	106	1.0	0.1	91.7	9.0
Asian	2,173	202	2.0	0.2	18.9	1.8
Native Hawaiian or other Pacific Islander	435	131	0.4	0.1	91.6	27.5
American Indian or Alaska Native	*809	250	*0.7	0.2	*30.0	9.3
Multiple races	173	36	0.2	0.0	4.2	0.9
Hospital characteristics						
Ownership:						
Voluntary	76,869	3,677	69.8	2.8	27.2	1.3
Government	20,279	2,786	18.4	2.3	7.2	1.0
Proprietary	13,007	2,532	11.8	2.1	4.6	0.9
Geographic region:						
Northeast	18,895	1,021	17.2	1.0	35.4	1.9
Midwest	26,006	1,866	23.6	1.6	40.6	2.9
South	45,544	3,399	41.3	2.1	45.1	3.4
West	19,710	1,872	17.9	1.5	30.5	2.9
Metropolitan status:						
MSA[4]	89,170	4,214	80.9	1.9	39.4	1.9
Non-MSA[4]	20,985	2,222	19.1	1.9	37.4	4.0

. . . Category not applicable.

*Figure does not meet standard of reliability or precision.

0.0 Quantity more than zero but less than 0.05.

[1]Visit rates for age, sex, race, and region are based on the July 1, 2002, set of estimates of the civilian noninstitutional population of the United States as developed by the Population Division, U.S. Census Bureau. These population estimates reflect Census 2000 data and are available from the U.S. Census Bureau. See "Technical Notes" for more details.

[2]2002 population estimates of metropolitan statistical area status are preliminary figures based on Census 2000 data and were obtained through the Office of Research and Methodology and Division of Health Interview Statistics, National Center for Health Statistics.

[3]The race groups, white, black or African American, Asian, Native Hawaiian or other Pacific Islander, American Indian or Alaska Native, and multiple races, include persons of Hispanic and not Hispanic orgin. Persons of Hispanic orgin may be of any race. Starting with data year 1999, race-specific estimates have been tabulated according to 1997 Standards for Federal Data on Race and Ethnicity and are not strictly comparable with estimates for earlier years. However, the percent of visit records with multiple races indicated is small and lower than what is typically found for self-reported race. See "Technical Notes" for more details.

[4]MSA is metropolitan statistical area.

NOTE: Numbers may not add to totals because of rounding.

Table 2. Number and percent distribution of emergency department visits with corresponding standard errors, by primary expected source of payment: United States, 2002

Primary expected source of payment	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	110,155	4,416	100.0	. . .
Private insurance	42,802	2,026	38.9	1.0
Medicaid/SCHIP[1]	21,751	1,482	19.7	0.9
Medicare	16,964	762	15.4	0.5
Self-pay	15,935	887	14.5	0.6
Worker's compensation	2,148	159	2.0	0.1
No charge	*1,155	402	*1.0	0.4
Other	2,551	271	2.3	0.3
Unknown/blank	6,848	901	6.2	0.8

. . . Category not applicable.
*Figure does not meet standard of reliability or precision.
[1]SCHIP is State Children's Health Insurance Program.
NOTE: Numbers may not add to totals because of rounding.

Table 3. Percent distribution of emergency department visits with corresponding standard errors by immediacy with which patient should be seen, according to selected patient and visit characteristics: United States, 2002

Patient and visit characterisitcs	Number of visits in thousands	Immediacy with which patient should be seen										
		Total	Emergent[1]	Urgent[2]	Semiurgent[3]	Nonurgent[4]	Unknown/ no triage[5]	Emergent[1]	Urgent[2]	Semiurgent[3]	Nonurgent[4]	Unknown/ no triage[5]
		Percent distribution						Standard error of percent				
All visits	110,155	100.0	22.3	34.2	18.5	10.2	14.8	1.7	1.5	1.3	1.4	1.7
Age												
Under 15 years	24,077	100.0	16.3	33.5	19.7	15.6	14.9	1.6	2.1	1.4	3.4	2.0
15–24 years	17,215	100.0	18.6	33.9	20.8	11.6	15.1	2.0	1.9	1.8	1.6	2.0
25–44 years	32,432	100.0	20.7	34.3	20.1	10.1	14.9	1.8	1.6	1.6	1.4	1.8
45–64 years	19,943	100.0	24.8	34.4	17.5	8.1	15.2	1.7	1.5	1.3	1.1	1.9
65–75 years	6,759	100.0	32.4	35.1	13.6	4.1	14.8	2.2	1.9	1.5	0.8	2.0
75 years and over	9,728	100.0	36.9	34.6	12.1	3.1	13.3	2.2	1.6	1.2	0.6	1.9
Sex												
Female	59,594	100.0	22.0	34.9	18.7	9.6	14.7	1.7	1.5	1.4	1.3	1.7
Male	50,561	100.0	22.6	33.3	18.4	10.8	15.0	1.7	1.4	1.2	1.5	1.7
Race[6]												
White	81,704	100.0	23.6	34.0	18.3	9.1	15.1	1.8	1.5	1.4	1.3	1.7
Black or African American	24,861	100.0	17.8	34.5	19.7	14.4	13.6	1.8	2.1	1.4	2.8	2.3
Other	3,590	100.0	23.2	36.6	16.5	6.1	17.6	2.7	3.8	2.5	1.1	5.6
Expected source of payment												
Private insurance	42,802	100.0	21.6	35.1	18.5	9.7	15.1	1.7	1.6	1.4	1.3	2.0
Medicaid/SCHIP[7]	21,751	100.0	18.1	34.8	19.6	13.5	14.0	1.8	2.1	1.7	2.5	2.1
Medicare	16,964	100.0	34.1	34.3	13.9	3.9	13.9	2.2	1.5	1.5	0.6	2.2
Self-pay	15,935	100.0	20.8	34.9	21.0	11.5	11.7	2.3	2.1	1.6	1.7	1.7
Worker's compensation	2,148	100.0	20.6	33.6	21.4	9.5	14.9	2.9	2.9	2.9	2.0	2.9
No charge	*1,155	100.0	8.6	17.7	*20.1	*36.5	17.0	2.2	4.5	6.9	14.0	6.5
Other	2,551	100.0	22.2	37.6	17.0	10.2	13.0	4.4	3.4	2.3	2.2	2.4
Unknown/blank	6,848	100.0	16.9	26.3	20.4	10.9	25.5	2.4	2.2	3.1	2.0	4.0

* Figure does not meet standard of reliability or precision.

[1]A visit in which the patient should be seen in less than 15 minutes.

[2]A visit in which the patient should be seen within 15–60 minutes.

[3]A visit in which the patient should be seen within 61–120 minutes.

[4]A visit in which the patient should be seen within 121 minutes-24 hours.

[5]A visit in which there is no mention of an immediacy rating or triage level in the medical record or the hospital did not perform triage or the patient was dead on arrrival.

[6]Other race includes visits by Asians, Native Hawaiians or other Pacific Islanders, American Indians or Alaska Natives, and multiple races. All race categories include visits by persons of Hispanic and not Hispanic origin. Persons of Hispanic origin may be of any race. Starting with data year 1999, race-specific estimates have been tabulated according to 1997 Standards for Federal Data on Race and Ethnicity and are not strictly comparable with estimates for earlier years. However, the percent of visit records with multiple races indicated is small and lower than what is typically found for self-reported race. See "Technical Notes" for more details."

[7]SCHIP is State Children's Health Insurance Program.

NOTE: Numbers may not add to totals because of rounding.

Table 4. Mean initial vital signs for patients seen at emergency department visits with corresponding standard errors and percentiles, by type of vital sign, according to patient's age: United States, 2002

Type of vital sign	Mean	Standard error	25th percentile	50th percentile	75th percentile
Temperature in Fahrenheit					
All visits	98.3	0.0	97.3	98.0	98.8
Under 5 years	99.3	0.1	97.7	98.9	100.7
5 years and over	98.1	0.0	97.3	98.0	98.7
Reason for visit of fever	100.6	0.1	98.9	100.6	102.3
Pulse					
All visits	92.5	0.6	75.6	87.3	102.4
Under 18 years	111.4	1.0	87.2	107.1	131.4
18–44 years	86.9	0.2	74.9	84.8	96.4
45–64 years	85.9	0.3	73.0	83.7	95.6
65 years and over	84.2	0.4	71.0	81.3	94.5
Systolic blood pressure in mmHg[1]					
All visits	132.7	0.4	115.4	129.8	145.5
18–44 years	130.1	0.3	116.4	128.3	140.3
45–64 years	140.9	0.5	123.7	138.8	154.9
65 years and over	146.7	0.5	126.8	144.2	164.6
Diagnosis of hypertension	163.5	2.0	138.7	160.4	188.1
Diastolic blood pressure in mmHg[1]					
All visits	76.2	0.2	66.2	75.4	84.6
18–44 years	77.0	0.3	68.1	76.1	84.4
45–64 years	81.7	0.3	71.7	80.6	89.7
65 years and over	76.4	0.4	65.3	75.6	86.4
Diagnosis of hypertension	90.0	1.1	75.7	88.8	101.1

0.0 Quantity more than zero but less than 0.05.
[1]mmHg is millimeters of mercury.

Table 5. Number and percent distribution of emergency department visits with corresponding standard errors, by patient's principal reason for visit: United States, 2002

Principal reason for visit and RVC code[1]		Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits		110,155	4,416	100.0	. . .
Symptom module	S001–S999	79,192	3,446	71.9	0.6
General symptoms	S001–S099	17,510	851	15.9	0.3
Symptoms referable to psychological/mental disorders	S100–S199	2,049	123	1.9	0.1
Symptoms referable to the nervous system (excluding sense organs)	S200–S259	6,653	314	6.0	0.2
Symptoms referable to the cardiovascular/lymphatic system	S260–S299	914	85	0.8	0.1
Symptoms referable to the eyes and ears	S300–S399	3,694	240	3.4	0.1
Symptoms referable to the respiratory system	S400–S499	13,247	825	12.0	0.4
Symptoms referable to the digestive system	S500–S639	14,429	602	13.1	0.3
Symptoms referable to the genitourinary system	S640–S829	3,785	199	3.4	0.1
Symptoms referable to the skin, hair, and nails	S830–S899	2,724	171	2.5	0.1
Symptoms referable to the musculoskeletal system	S900–S999	14,185	709	12.9	0.4
Disease module	D001–D999	4,543	267	4.1	0.2
Diagnostic/screening and preventive module	X100–X599	946	123	0.9	0.1
Treatment module	T100–T899	2,449	150	2.2	0.1
Injuries and adverse effects module	J001–J999	21,847	907	19.8	0.5
Test results module	R100–R700	333	51	0.3	0.0
Administrative module	A100–A140	156	31	0.1	0.0
Other	U990–U999	690	134	0.6	0.1

. . . Category not applicable.
0.0 Quantity more than zero but less than 0.05.
[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (12). Includes problems and complaints not elsewhere classified, entries of "none," blanks, and illegible entries.
NOTE: Numbers may not add to totals because of rounding.

Table 6. Number and percent distribution of emergency department visits with corresponding standard errors, by the 20 leading principal reasons for visit by patient: United States, 2002

Principal reason for visit and RVC code[1]	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	110,155	4,416	100.0	. . .
Stomach pain, cramps, and spasms .S545	7,152	356	6.5	0.2
Chest pain and related symptoms .S050	5,637	287	5.1	0.2
Fever .S010	5,310	503	4.8	0.4
Cough .S440	3,016	288	2.7	0.2
Shortness of breath .S415	2,943	189	2.7	0.1
Headache, pain in head .S210	2,844	165	2.6	0.1
Back symptoms .S905	2,713	176	2.5	0.1
Symptoms referable to throat .S455	2,483	262	2.3	0.2
Vomiting .S530	2,422	214	2.2	0.2
Pain, site not referrable to a specific body system .S055	2,176	134	2.0	0.1
Lacerations and cuts—upper extremity .J225	2,161	140	2.0	0.1
Motor vehicle accident, type of injury unspecified .J805	1,758	137	1.6	0.1
Earache or ear infection .S355	1,748	143	1.6	0.1
Accident, not otherwise stated .J810	1,729	142	1.6	0.1
Vertigo—dizziness .S225	1,578	102	1.4	0.1
Injury, other and unspecified type—head, neck, and face .J505	1,468	115	1.3	0.1
Low back symptoms .S910	1,438	101	1.3	0.1
Labored or difficult breathing (dyspnea) .S420	1,387	110	1.3	0.1
Skin rash .S860	1,376	104	1.2	0.1
Nausea .S525	1,355	107	1.2	0.1
All other reasons	57,462	2,232	52.2	0.5

. . . Category not applicable.
[1]Based on *A Reason for Visit Classification for Ambulatory Care* (RVC) (12).

NOTE: Numbers may not add to totals because of rounding.

Table 7. Number and percent distribution of emergency department visits with corresponding standard errors, by prior emergency department visit and residence of patient: United States, 2002

Visit characteristic	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	110,155	4,416	100.0	. . .
Prior ED[1] visit				
Patient seen in this ED[1] within the last 72 hours:				
Yes	3,465	276	3.1	0.2
No	99,416	4,197	90.3	0.9
Unknown/blank	7,274	939	6.6	0.8
Episode of care:				
Initial visit for problem	97,568	4,077	88.6	0.7
Followup for problem	6,020	456	5.5	0.3
Unknown/blank	6,566	736	6.0	0.7
Residence of patient				
Resides in nursing home or other institution:				
Yes	2,608	182	2.4	0.1
No	100,889	4,178	91.6	0.6
Unknown/blank	6,657	738	6.0	0.6

. . . Category not applicable.
[1]ED is emergency department.

NOTE: Numbers may not add to totals because of rounding.

Table 8. Number and percent distribution of emergency department visits with corresponding standard errors, by primary diagnosis: United States, 2002

Major disease category and ICD–9–CM code range[1]	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	110,155	4,416	100.0	. . .
Infectious and parasitic diseases 001–139	3,422	240	3.1	0.2
Neoplasms 140–239	257	35	0.2	0.0
Endocrine, nutritional, metabolic diseases, and immunity disorders 240–279	1,637	122	1.5	0.1
Mental disorders 290–319	3,487	186	3.2	0.1
Diseases of the nervous system and sense organs 320–389	6,244	424	5.7	0.3
Diseases of the circulatory system 390–459	4,648	276	4.2	0.2
Diseases of the respiratory system 460–519	12,978	940	11.8	0.6
Diseases of the digestive system 520–579	6,657	318	6.0	0.2
Diseases of the genitourinary system 580–629	4,949	256	4.5	0.2
Diseases of the skin and subcutaneous tissue 680–709	3,166	210	2.9	0.1
Diseases of the musculoskeletal and connective tissue 710–739	5,939	336	5.4	0.2
Symptoms, signs, and ill-defined conditions 780–799	19,574	900	17.8	0.5
Injury and poisoning 800–999	28,749	1,145	26.1	0.5
Fractures 800–829	3,705	198	3.4	0.1
Sprains 840–848	6,164	286	5.6	0.2
Intracranial 850–854	293	45	0.3	0.0
Open wounds 870–897	6,507	318	5.9	0.2
Superficial 910–919	1,750	142	1.6	0.1
Contusions 920–924	4,692	239	4.3	0.2
Foreign bodies 930–939	538	65	0.5	0.1
Burns 940–943	164	27	0.1	0.0
Trauma complications and unspecified injuries 958–959	1,607	113	1.5	0.1
Poisoning and toxic effects 960–989	889	77	0.8	0.1
Surgical and medical complications 996–999	454	50	0.4	0.0
Other injuries	1,986	131	1.8	0.1
Supplementary classification V01-V82	2,973	193	2.7	0.1
All other diagnoses[2]	3,744	258	3.4	0.2
Unknown[3]	1,729	157	1.6	0.1

. . . Category not applicable.

0.0 Quantity more than zero but less than 0.05.

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (13).

[2]Includes diseases of the blood and blood-forming organs (280–289); complications of pregnancy, childbirth, and the puerperium (630–677); congenital anomalies (740–759); and certain disorders originating in the perinatal period (760–779), and diagnoses that were uncodeable, patient left before being seen, patient was transferred to another facility, health maintenance organization did not authorize treatment, or entries of "none," "no diagnosis," "no disease," or "healthy."

[3]Includes blank diagnoses, uncodable diagnoses, and illegible diagnoses.

NOTE: Numbers may not add to totals because of rounding.

Table 9. Number and percent distribution of emergency department visits with corresponding standard errors, by the 20 leading diagnosis groups: United States, 2002

Primary diagnosis group and ICD–9–CM code(s)[1]	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	110,155	4,416	100.0	. . .
Contusion with intact skin surface 920–924	4,692	239	4.3	0.2
Acute upper respiratory infection, excluding pharyngitis 460–461,463–466	4,386	381	4.0	0.3
Open wound, excluding head 874–897	4,171	217	3.8	0.1
Abdominal pain 789.0	4,026	254	3.7	0.2
Chest pain 786.5	3,741	202	3.4	0.1
Otitis media and eustachian tube disorders 381–382	2,659	281	2.4	0.2
Sprains and strains, excluding ankle and back 840–844,845.1,848	2,631	163	2.4	0.1
Spinal disorders 720–724	2,596	157	2.4	0.1
Fractures, excluding lower limb 800–819	2,567	148	2.3	0.1
Sprains and strains of neck and back 846,847	2,383	150	2.2	0.1
Open wound of head 870–873	2,336	150	2.1	0.1
Acute pharyngitis 462	1,985	231	1.8	0.2
Asthma 493	1,898	141	1.7	0.1
Urinary tract infection, site not specified 599.0	1,760	123	1.6	0.1
Heart disease, excluding ischemic 391–392.0,393–398,402,404,415–416,420–429	1,760	135	1.6	0.1
Superficial injuries 910–919	1,750	142	1.6	0.1
Rheumatism, excluding back 725–729	1,675	143	1.5	0.1
Unspecified viral and chlamydial infection 79.9	1,596	171	1.4	0.1
Chronic and unspecified bronchitis 490–491	1,538	132	1.4	0.1
Headache 784.0	1,531	128	1.4	0.1
All other diagnoses	58,474	2,286	53.1	0.5

. . . Category not applicable.

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (13). However, certain codes have been combined in this table to describe the utilization of ambulatory care services.

NOTE: Numbers may not add to totals because of rounding.

Table 10. Number, percent distribution, and annual rate of injury-related emergency department visits with corresponding standard errors, by patient's age, sex, and race: United States, 2002

Patient's age, sex, and race	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent	Number of visits per 100 persons per year[1]	Standard error of rate
All injury-related visits	39,157	1,556	100.0	. . .	13.8	0.5
Age						
Under 15 years	8,429	536	21.5	0.9	13.9	0.9
15–24 years	7,188	336	18.4	0.4	18.2	0.9
25–44 years	12,596	536	32.2	0.6	15.2	0.6
45–64 years	6,449	280	16.5	0.4	9.7	0.4
65–74 years	1,810	128	4.6	0.3	10.0	0.7
75 years and over	2,685	148	6.9	0.3	16.9	0.9
Sex and age						
Female	17,884	739	45.7	0.5	12.3	0.5
Under 15 years	3,485	263	8.9	0.5	11.8	0.9
15–24 years	3,014	152	7.7	0.3	15.4	0.8
25–44 years	5,425	268	13.9	0.4	12.9	0.6
45–64 years	3,211	184	8.2	0.4	9.4	0.5
65–74 years	984	89	2.5	0.2	10.0	0.9
75 years and over	1,766	112	4.5	0.2	18.0	1.1
Male	21,274	867	54.3	0.5	15.4	0.6
Under 15 years	4,944	322	12.6	0.6	15.9	1.0
15–24 years	4,174	232	10.7	0.3	21.0	1.2
25–44 years	7,171	319	18.3	0.5	17.6	0.8
45–64 years	3,239	156	8.3	0.3	10.1	0.5
65–74 years	827	77	2.1	0.2	10.1	0.9
75 years and over	919	65	2.3	0.2	15.0	1.1
Race and age[2]						
White	30,575	1,337	78.1	1.1	13.4	0.6
Under 15 years	6,388	416	16.3	0.7	13.8	0.9
15–24 years	5,670	285	14.5	0.4	18.4	0.9
25–44 years	9,549	456	24.4	0.6	14.4	0.7
45–64 years	5,075	252	13.0	0.4	9.1	0.5
65–74 years	1,521	124	3.9	0.3	9.7	0.8
75 years and over	2,373	138	6.1	0.3	16.7	1.0
Black or African American	7,359	476	18.8	1.0	20.8	1.3
Under 15 years	1,737	187	4.4	0.4	18.3	2.0
15–24 years	1,321	114	3.4	0.3	23.3	2.0
25–44 years	2,681	201	6.8	0.5	25.9	1.9
45–64 years	1,154	89	2.9	0.2	16.4	1.3
65–74 years	237	45	0.6	0.1	14.6	2.8
75 years and over	230	30	0.6	0.1	19.6	2.5
Other	1,223	147	3.1	0.4	6.5	0.8

. . . Category not applicable.

[1]Visit rates for age, sex, race, and region are based on the July 1, 2002, set of estimates of the civilian noninstitutional population of the United States as developed by the Population Division, U.S. Census Bureau. These population estimates reflect U.S. Census 2000 data and are available from the Census Bureau. See "Technical Notes" for more detail.

[2]Other race includes visits by Asians, Native Hawaiians or other Pacific Islanders, American Indians or Alaska Natives, and multiple races. All race categories include visits by persons of Hispanic origin. Persons of Hispanic origin may be of any race. Starting with data year 1999, race-specific estimates have been tabulated according to 1997 Standards for Federal Data on Race and Ethnicity and are not strictly comparable with estimates for earlier years. However, the percent of visit records with multiple races indicated is small and lower than what is typically found for self-reported race. See "Technical Notes" for more details.

NOTE: Numbers may not add to totals because of rounding.

Table 11. Number and percent distribution of emergency department visits with corresponding standard errors by selected characteristics of the injury, according to patient's age: United States, 2002

Selected characteristics of the injury	All ages		Under 18 years		18–64 years		65 years and over	
	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution	Number of visits in thousands	Percent distribution
All injury-related visits	39,157	100.0	10,285	100.0	24,378	100.0	4,495	100.0
Number of adverse drug events								
None	35,807	91.4	9,920	96.4	21,768	89.3	4,119	91.6
Single drug	2,781	7.1	309	3.0	2,106	8.6	366	8.1
Multiple drugs	486	1.2	*	*	441	1.8	*	*
Unknown/blank	*82	*0.2	*	*	*	*	*	*
Intentionality								
Yes (self-inflicted)	1,059	2.7	123	1.2	926	3.8	*	*
Yes (assault)	1,463	3.7	275	2.7	1,147	4.7	*	*
No, unintentional	30,481	77.8	8,428	81.9	18,195	74.6	3,858	85.8
Unknown/blank	6,154	15.7	1,459	14.2	4,110	16.9	585	13.0
Work-related								
Yes	3,032	7.7	*	*	2,919	12.0	*	*
No	25,077	64.0	7,958	77.4	14,035	57.6	3,084	68.6
Unknown/blank	11,048	28.2	2,265	22.0	7,424	30.5	1,360	30.3
	Standard error in thousands	Standard error of percent	Standard error in thousands	Standard error of percent	Standard error in thousands	Standard error of percent	Standard error in thousands	Standard error of percent
All injury-related visits	1,556	. . .	595	. . .	985	. . .	234	. . .
Number of adverse drug events								
None	1,447	0.4	581	0.4	885	0.5	216	1.1
Single drug	159	0.3	41	0.4	148	0.5	52	1.1
Multiple drugs	54	0.1	. . .	. . .	50	0.2	. . .	. . .
Unknown/blank	34	0.1	. . .	. . .	. . .	. . .	. . .	. . .
Intentionality								
Yes (self-inflicted)	94	0.2	25	0.2	86	0.3	. . .	. . .
Yes (assault)	106	0.2	40	0.4	94	0.3	. . .	. . .
No, unintentional	1,273	1.0	513	1.2	782	1.3	210	1.3
Unknown/blank	462	1.0	150	1.2	334	1.1	65	1.3
Work-related								
Yes	188	0.4	. . .	. . .	181	0.6	. . .	. . .
No	1,107	1.2	503	1.6	634	1.3	179	1.9
Unknown/blank	656	1.2	203	1.6	438	1.3	116	2.0

. . . Category not applicable.
* Figure does not meet standard of reliability or precision.
NOTE: Numbers may not add to totals because of rounding.

Table 12. Number and percent distribution of injury-related emergency department visits with corresponding standard errors, by intent and mechanism of external cause: United States, 2002

Intent and mechanism[1]	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All injury-related visits	39,157	1,556	100.0	. . .
Unintentional injuries	26,622	1,139	68.0	0.8
Falls	7,034	307	18.0	0.4
Struck against or struck accidentally by objects or persons	4,513	249	11.5	0.4
Motor vehicle traffic	4,216	222	10.8	0.4
Cutting or piercing instruments or objects	2,518	155	6.4	0.3
Overexertion and strenuous movements	1,521	111	3.9	0.2
Natural and environmental factors	1,505	126	3.8	0.3
Poisoning by drugs, medicinal substances, biological, other solid and liquid substances, gases and vapors	700	72	1.8	0.2
Fire and flames, hot substances or object, caustic or corrosive material and steam	564	59	1.4	0.1
Motor vehicle, nontraffic	429	62	1.1	0.1
Pedal cycle, nontraffic and other	411	47	1.1	0.1
Machinery	305	40	0.8	0.1
Other transportation	139	27	0.4	0.1
Other mechanism[2]	1,931	132	4.9	0.2
Mechanism, unspecified	838	80	2.1	0.2
Intentional injuries	2,176	156	5.6	0.3
Assault	1,568	113	4.0	0.2
Unarmed fight or brawl, striking by blunt or thrown object	868	76	2.2	0.2
Cutting or piercing instrument	145	25	0.4	0.1
Other and unspecified mechanism[3]	555	59	1.4	0.1
Self-inflicted	509	64	1.3	0.2
Poisoning by solid or liquid substances, gases, and vapors	387	56	1.0	0.1
Other and unspecified mechanism[4]	122	25	0.3	0.1
Other causes of violence	99	26	0.3	0.1
Injuries of undetermined intent	108	20	0.3	0.1
Adverse effects of medical treatment	1,377	109	3.5	0.3
Blank cause[5]	8,874	441	22.7	0.8

. . . Category not applicable.

* Figure does not meet standard of reliability or precision.

[1]Based on the "Supplementary Classification of External Cause of Injury and Poisoning," *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (13). A detailed description of the ICD–9–CM E-codes used to create the groupings in this table is provided in the "Technical Notes."

[2]Includes drowning, suffocation, firearm, and other mechanism.

[3]Includes assault by firearms and explosives, and other mechanism.

[4]Includes injury by cutting and piercing instrument, and other and unspecified mechanism.

[5]Includes illegible entries and blanks.

Table 13. Number and percent of injury-related emergency department visits with corresponding standard errors, by body site of primary diagnosis: United States, 2002

Body site[1]	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All injury visits	39,157	1,556	100.0	. . .
Head and neck	5,620	314	14.4	0.5
Traumatic brain injury	355	57	0.9	0.1
Other head	1,357	101	3.5	0.2
Face	1,871	125	4.8	0.2
Eye	635	69	1.6	0.2
Head, face, and neck, unspecified	1,402	116	3.6	0.2
Spinal cord	*	. . .	*	. . .
Vertebral column	1,997	134	5.1	0.3
Cervical	1,211	90	3.1	0.2
Thoracic/dorsal	128	24	0.3	0.1
Lumbar	621	69	1.6	0.2
Other vertebral column	*	. . .	*	. . .
Torso	2,045	125	5.2	0.3
Chest	901	71	2.3	0.2
Abdomen	101	21	0.3	0.1
Pelvis and urogenital	322	40	0.8	0.1
Trunk	223	36	0.6	0.1
Back and buttocks	497	52	1.3	0.1
Upper extremity	7,925	366	20.2	0.5
Shoulder and upper arm	1,410	95	3.6	0.2
Forearm and elbow	1,297	100	3.3	0.2
Wrist, hand, and fingers	4,760	243	12.2	0.4
Other and unspecified upper extremity	458	46	1.2	0.1
Lower extremity	5,744	272	14.7	0.4
Hip	425	46	1.1	0.1
Upper leg and thigh	125	25	0.3	0.1
Knee	475	49	1.2	0.1
Lower leg and ankle	1,744	118	4.5	0.2
Foot and toes	1,446	99	3.7	0.2
Other and unspecified lower extremity	1,528	117	3.9	0.2
System-wide	1,593	112	4.1	0.2
Other and unspecified body site injuries	2,546	192	6.5	0.4
Adverse effects and medical complications	1,236	93	3.2	0.2
All other diagnoses[2]	9,616	516	24.6	0.7
Unknown[3]	796	74	2.0	0.2

. . . Category not applicable.

*Figure does not meet standard of reliability or precision.

[1]Based on the *International Classification of Diseases, 9th Revision, Clinical Modication* (ICD–9–CM) (13). A detailed description of the Barell Injury Diagnosis Matrix: Classification by Region of Body and Nature of Injury is provided in the "Technical Notes." Three additional categories were added that were not in the Barell Injury Diagnosis Matrix to account for all injury-related visits: illness diagnoses, supplementary classification, and other adverse effects and medical complications.

[2]All other diagnoses included musculoskeletal system (710–739), symptoms and ill-defined conditions (780–799), skin and subcutaneous tissue (680–709), mental disorders (290–319), nervous system and sense organs (320–389), other illnesses (001–289, 390–677, 740–779), and supplementary classification (V01-V82).

[3]Includes blank diagnoses, uncodable diagnoses, and illegible diagnoses.

NOTE: Numbers may not add to totals because of rounding.

Table 14. Number and percent of emergency department visits with corresponding standard errors, by diagnostic and screening services ordered or provided: United States, 2002

Diagnostic and screening services ordered or provided	Number of visits in thousands[1]	Standard error in thousands	Percent of visits	Standard error of percent
All visits	110,155	4,416	. . .	. . .
None	12,788	1,528	11.6	1.2
Examinations and tests				
Medical screening	69,269	3,752	62.9	2.7
Pulse oximetry	21,043	1,769	19.1	1.3
Urinalysis	17,704	892	16.1	0.6
EKG/ECG[2]	16,533	806	15.0	0.5
Mental status exam	11,359	1,728	10.3	1.5
Cardiac monitor	7,377	554	6.7	0.4
Pregnancy test	3,551	290	3.2	0.2
EEG[3]	281	41	0.3	0.0
Imaging				
Chest x ray	20,412	984	18.5	0.5
Extremity x ray	11,057	527	10.0	0.3
Other x ray	10,290	540	9.3	0.3
MRI/CAT scan[4,5]	7,857	436	7.1	0.3
Ultrasound	2,257	192	2.0	0.2
Other imaging	1,771	158	1.6	0.1
Any imaging	44,828	1,910	40.7	0.8
Blood tests				
CBC[6]	33,503	1,396	30.4	0.7
Other blood chemistry	19,336	1,101	17.6	0.8
BUN[7]	16,596	1,150	15.1	0.9
Glucose	15,366	1,077	13.9	0.8
Creatinine	15,348	1,100	13.9	0.9
Cholesterol	3,947	555	3.6	0.5
HgbA1C[8]	2,113	409	1.9	0.3
BAC[9]	1,517	135	1.4	0.1
HIV serology[10]	163	26	0.1	0.0
Any blood test listed	36,632	1,471	33.3	0.7
Cultures				
Urine	4,638	352	4.2	0.3
Blood	2,768	216	2.5	0.2
Throat/rapid strep test	2,138	174	1.9	0.1
Cervical urethral	825	96	0.7	0.1
Stool	670	99	0.6	0.1
Any culture listed	9,529	560	8.7	0.4
Other	9,768	752	8.9	0.5
Blank	1,709	354	1.6	0.3

. . . Category not applicable.
0.0 Quantity more than zero but less than 0.05.
[1]Total exceeds "All visits" because more than one service may be reported per visit.
[2]EKG/ECG is electrocardiogram.
[3]EEG is electroencephalogram.
[4]MRI is magnetic resonance imaging.
[5]CAT is computerized axial tomography.
[6]CBC is complete blood count.
[7]BUN is blood urea nitrogen.
[8]HgbA1C is glycohemoglobin.
[9]BAC is blood alcohol concentration.
[10]HIV is human immunodeficiency virus.

Table 15. Number and percent of emergency department visits with corresponding standard errors, by selected procedures: United States, 2002

Procedures provided	Number of visits in thousands[1]	Standard error in thousands	Percent of visits	Standard error of percent
All visits	110,155	4,416	. . .	. . .
None	55,222	2,894	50.1	1.4
IV fluids[2]	22,523	1,193	20.4	0.7
Wound care	11,126	572	10.1	0.3
Orthopedic care	5,701	399	5.2	0.3
Eye/ENT care[3]	3,322	657	3.0	0.6
Bladder catheter	2,687	228	2.4	0.2
OB/GYN care[4]	1,592	163	1.4	0.1
NG tube/gastric lavage[5]	516	55	0.5	0.1
Endotracheal intubation	317	43	0.3	0.0
CPR[6]	211	43	0.2	0.0
Thrombolytic therapy	188	36	0.2	0.0
Other	8,022	816	7.3	0.7
Blank	7,370	714	6.7	0.7

. . . Category not applicable.
0.0 Qualtity more than zero but less than 0.05.
[1]Total exceeds "All visits" because more than one precedure may be reported per visit.
[2]IV is intravenous.
[3]ENT is ear, nose, and throat.
[4]OB/GYN is obstetrics/gynecology.
[5]NG is nasogastric.
[6]CPR is cardiopulmonary resuscitation.

Table 16. Number and percent distribution of emergency department visits with corresponding standard errors, by medication therapy and number of medications provided or prescribed: United States, 2002

Medication therapy[1]	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	110,155	4,416	100.0	. . .
Drug visits[2]	83,492	3,693	75.8	0.8
Visits without mention of medication	26,662	1,200	24.2	0.8
Number of medications provided or prescribed				
All visits	110,155	4,416	100.0	. . .
0	26,662	1,200	24.2	0.8
1	29,636	1,167	26.9	0.5
2	24,366	1,133	22.1	0.4
3	13,888	848	12.6	0.4
4	7,085	431	6.4	0.2
5	3,483	262	3.2	0.2
6	5,036	540	4.6	0.4

. . . Category not applicable.
[1]Includes perscription drugs, over-the-counter preparations, immunizations, and desensitizing agents.
[2]Visits at which one or more drugs were provided or prescribed.

NOTE: Numbers may not add to totals because of rounding.

Table 17. Number and percent of drug mentions for the 20 most frequently occurring therapeutic drug classes at emergency department visits with corresponding standard errors: United States, 2002

Therapeutic class[1]	Number of occurrences in thousands	Standard error in thousands	Percent of drug mentions[2]	Standard error of percent
Narcotic analgesics	27,551	1,440	14.1	0.8
NSAIDs[3]	24,182	1,350	12.3	0.7
Nonnarcotic analgesics	14,439	921	7.4	0.6
Antipyretics	13,750	886	7.0	0.5
Antihistamines	13,522	771	6.9	0.4
Vertigo/motion sickness/vomiting	10,919	527	5.6	0.3
Sedatives and hypnotics	10,258	562	5.2	0.3
Antiasthmatics/bronchodilators	8,268	564	4.2	0.4
Cephalosporins	8,026	587	4.1	0.4
Penicillins	7,132	576	3.6	0.4
Acid/peptic disorders	5,490	370	2.8	0.2
Adrenal corticosteroids	5,234	342	2.7	0.2
Replenishers/regulators of electrolytes/water balance	4,879	439	2.5	0.4
Erythromycins/lincosamides/macrolides	4,390	403	2.2	0.3
Antianxiety agents	3,974	260	2.0	0.2
Skeletal muscle hyperactivity	3,817	257	1.9	0.2
Quinolones	3,690	240	1.9	0.2
Antiarthritics	3,354	269	1.7	0.2
Vaccines/antisera	2,968	185	1.5	0.1
Antianginal agents	2,691	202	1.4	0.1

[1]Based on the standard 4-digit drug classification used in the *National Drug Code Directory, 1995 edition* (16).
[2]Based on an estimated 195,997,000 drug mentions at emergency department visits in 2002. Total of all therapeutic classes will exceed total drug mentions because up to 3 classes may be coded for each drug.
[3]NSAIDs are nonsteroidal anti-inflammatory drugs.

Table 18. Number and rate of generic substances for the 20 most frequently occurring generic substances in drug mentions at emergency department visits with corresponding standard errors: United States, 2002

Generic substance	Number of occurrences in thousands[1]	Standard error in thousands	Number of generic substances per 100 drug mentions[2]	Standard error of rate
Acetaminophen	28,648	1,468	14.6	0.6
Ibuprofen	14,722	961	7.5	0.6
Hydrocodone bitartrate	11,100	719	5.7	0.5
Promethazine	8,291	449	4.2	0.3
Ketorolac tromethamine	5,890	339	3.0	0.2
Amoxicillin	5,453	529	2.8	0.4
Albuterol	5,234	340	2.7	0.2
Meperidine	3,875	314	2.0	0.2
Morphine	3,583	251	1.8	0.2
Cephalexin	3,242	248	1.7	0.2
Sodium chloride	3,201	380	1.6	0.3
Aspirin	3,139	245	1.6	0.2
Azithromycin	3,120	329	1.6	0.3
Oxycodone hydrochloride	2,994	337	1.5	0.3
Ceftriaxone	2,725	231	1.4	0.2
Codeine phosphate	2,696	243	1.4	0.2
Tetanus toxoid	2,601	181	1.3	0.1
Nitroglycerin	2,521	194	1.3	0.1
Diphenhydramine	2,466	146	1.3	0.1
Prednisone	2,287	164	1.2	0.1

[1]Frequency of mention combines single-ingredient agents with mentions of the agent as an ingredient in a combination drug.
[2]Based on an estimated 195,997,000 drug mentions at emergency department visits in 2002.

Table 19. Number, percent distribution, and therapeutic drug classes for the 20 drugs most frequently prescribed at emergency department visits with corresponding standard errors, by entry name of drug: United States, 2002

Entry name of drug[1]	Number of drug mentions in thousands	Standard error in thousands	Percent distribution	Standard error of percent	Therapeutic class[2]
All drug mentions	195,997	10,126	100.0	. . .	. . .
Tylenol	10,454	734	5.3	0.3	Nonnarcotic analgesics; Antipyretics
Motrin	9,048	651	4.6	0.2	NSAIDs[3]
Phenergan	7,802	428	4.0	0.2	Sedatives and hypnotics; Vertigo/motion sickness/vomiting; Antihistamines
Vicodin	6,979	591	3.6	0.3	Narcotic analgesics
Toradol	5,785	338	3.0	0.1	NSAIDs[3]
Albuterol	4,148	275	2.1	0.1	Antiasthmatics/bronchodilators
Ibuprofen	3,943	279	2.0	0.1	NSAIDs[3]
Demerol	3,751	313	1.9	0.1	Narcotic analgesics
Keflex	2,965	231	1.5	0.1	Cephalosporins
Lortab	2,714	479	1.4	0.2	Narcotic analgesics
Amoxicillin	2,549	199	1.3	0.1	Penicillins
Rocephin	2,476	224	1.3	0.1	Cephalosporins
Percocet-5	2,437	303	1.2	0.1	Narcotic analgesics
Normal saline	2,398	333	1.2	0.2	Replenishers/regulators of electrolytes/water balance
Morphine	2,327	190	1.2	0.1	Narcotic analgesics
Benadryl	2,316	150	1.2	0.1	Antihistamines
Zithromax	2,268	238	1.2	0.1	Erythromycins/lincosamides/macrolides
Prednisone	2,262	163	1.2	0.1	Adrenal corticosteroids
Lasix	1,877	165	1.0	0.1	Diuretics
A.S.A	1,838	172	0.9	0.1	Nonnarcotic analgesics; Antiarthritics; Antipyretics
All other mentions	115,661	6,625	59.0	0.7	. . .

. . . Category not applicable.
[1]The entry made by the hospital staff on the prescription or other medical records. This may be a trade name, generic name, or desired therapeutic effect.
[2]Theraputic classification is based on the *National Drug Code Directory*, 1995 edition (16). In cases where a drug had more than one therapeutic use, it was classified under each therapeutic class.
[3]NSAIDs are nonsteroidal anti-inflammatory drugs.

NOTE: Numbers may not add to totals because of rounding.

Table 20. Number and percent of emergency department visits with corresponding standard errors, by providers seen: United States, 2002

Type of provider	Number of visits in thousands[1]	Standard error in thousands	Percent of visits	Standard error of percent
All visits	110,155	4,416	. . .	. . .
Any physician	103,020	4,079	93.5	0.5
Staff physician	96,644	4,047	87.7	1.4
Other physician	9,955	1,348	9.0	1.2
Resident/intern	9,778	1,151	8.9	1.1
R.N.[2]	97,504	4,170	88.5	1.6
Other technician	26,421	2,218	24.0	1.7
L.P.N[3]	8,491	1,566	7.7	1.3
E.M.T.[4]	7,874	1,118	7.1	1.0
Physician assistant	5,367	772	4.9	0.7
Nurse practitioner	1,803	323	1.6	0.3
Other	6,253	1,197	5.7	1.1
Blank	1,673	291	1.5	0.3

. . . Category not applicable.
[1]Total exceeds "All visits" because more than one disposition may be reported per visit.
[2]R.N. is registered nurse.
[3]L.P.N. is licensed practical nurse.
[4]E.M.T. is emergency medical technician.

Table 21. Number and percent of emergency department visits with corresponding standard errors, by visit disposition: United States, 2002

Disposition	Number of visits in thousands	Standard error in thousands	Percent of visits	Standard error of percent
All visits[1]	110,155	4,416	. . .	. . .
Admitted/transferred/died				
Admit to hospital[2]	13,471	721	12.2	0.5
Transfer to other facility	1,994	167	1.8	0.1
Admit to ICU/CCU[3]	1,405	162	1.3	0.1
Admit to 23-hour observation	688	81	0.6	0.1
DOA/died in ED[4,5]	272	48	0.2	0.0
Referred/returned to physician				
Refer to other physician/clinic for FU[6]	49,160	2,653	44.6	1.7
Return to referring physician	18,733	1,849	17.0	1.5
Left/referred out from triage				
Left before being seen	2,116	218	1.9	0.2
Left AMA[7]	1,023	144	0.9	0.1
Refer out from triage without treatment	156	46	0.1	0.0
Returned/referred to other treatment				
Return to nonphysician treatment or support service	548	67	0.5	0.1
Refer to alcohol or drug treatment program	449	54	0.4	0.0
Other				
Return if needed, PRN/appointment[8]	42,799	3,061	38.9	2.0
No followup planned	9,244	1,127	8.4	1.0
Other	1,144	226	1.0	0.2
Blank	1,233	328	1.1	0.3

. . . Category not applicable.
0.0 Quantity more than zero but less than 0.05.
[1]Total exceeds "All visits" because more than one disposition may be reported per visit.
[2]Includes those admitted to ICU/CCU.
[3]ICU/CCU is intensive care unit/critical care unit or coronary care unit and is a subset of those admitted to hospital.
[4]DOA is dead on arrival.
[5]ED is emergency department.
[6]FU is followup.
[7]AMA is against medical advise.
[8]PRN is "as needed."

Table 22. Number and percent distribution of emergency department visits with corresponding standard errors, by time spent in the emergency department: United States, 2002

Time spent in emergency department	Number of visits in thousands	Standard error in thousands	Percent distribution	Standard error of percent
All visits	110,155	4,416	100.0	. . .
Less than 1 hour	17,396	1,042	15.8	0.7
1–2 hours	28,061	1,406	25.5	0.6
2–4 hours	33,509	1,534	30.4	0.7
4–6 hours	11,887	725	10.8	0.5
6–10 hours	5,774	378	5.2	0.3
10–14 hours	1,552	155	1.4	0.1
14–23 hours	1,419	128	1.3	0.1
23–24 hours	154	33	0.1	0.0
24 hours or more	*823	279	*0.7	0.2
Blank	9,580	1,145	8.7	1.0

. . . Category not applicable.
*Figure does not meet standard of reliability or precision.
0.0 Quantity more than zero but less than 0.05.

NOTE: Numbers may not add to totals because of rounding.

Table 23. Percent distribution of emergency departments and corresponding standard errors by selected characteristics, according to size of annual visit volume: United States, 2002

Emergency department characteristic	All 24-hour EDs[1]		Small (less than 20,000)		Medium (20,000–50,000)		Large (more than 50,000)	
	Percent distribution	Standard error of percent	Percent distribution	Standard error of percent	Percent distribution	Standard error of percent	Percent distribution	Standard error of percent
	100.0	. . .	100.0	. . .	100.0	. . .	100.0	. . .
Geographic region								
Northeast	14.9	1.3	12.0	2.4	20.6	2.6	12.2	2.4
Midwest	29.2	3.1	34.3	5.9	19.8	3.0	32.2	4.7
South	37.9	3.0	38.5	5.8	38.3	4.4	34.7	5.1
West	18.0	2.5	*15.2	*4.9	21.3	3.3	20.9	4.4
Metropolitian status								
MSA[2]	60.2	3.6	33.9	5.2	86.6	4.7	96.8	2.6
Non-MSA[2]	39.8	3.6	66.1	5.2	*13.4	*4.7	*3.2	*2.6
Ownership								
Voluntary	65.1	3.9	55.6	6.1	74.8	4.2	78.2	4.6
Government	21.7	3.9	*29.0	*6.4	*11.3	*3.4	19.1	3.9
Proprietary	13.2	2.7	*15.5	*4.7	*14.0	*3.4	*2.7	*1.6
Medical school affiliation								
Yes	28.2	4.2	*15.0	*6.4	33.3	4.3	65.7	5.6
No	71.8	4.2	85.0	6.4	66.7	4.3	34.3	5.6
Automated drug dispensing system in ED[1]								
Yes	40.3	4.0	18.5	4.9	63.6	4.3	67.4	4.8
No	54.1	4.3	76.3	5.6	29.9	4.2	28.1	4.9
Unknown	*5.6	*2.0	*5.2	*3.4	*6.5	*2.2	*4.5	*2.0
Electronic medical records in ED[1]								
Yes	32.2	3.9	24.7	6.1	38.0	4.8	46.6	6.6
No	63.9	4.0	71.2	6.4	59.5	4.7	46.9	6.6
Unknown	*3.9	*1.9	*4.2	*3.4	*2.5	*1.1	*6.5	*3.2
Board-certified emergency medicine physician[3]								
Yes	67.0	4.4	51.3	7.1	84.2	3.3	85.4	4.1
No	25.1	4.5	41.1	7.3	*8.3	*2.9	*4.7	*1.8
Unknown	7.9	1.8	*7.6	*2.9	*7.5	*2.4	*9.9	*3.8
Board-certified pediatric emergency medicine physician[3]								
Yes	23.9	3.5	*21.2	*6.2	25.2	4.2	30.7	4.3
No	66.8	3.7	70.7	6.3	64.4	4.9	58.0	4.5
Unknown	9.3	1.9	*8.1	*2.9	10.4	2.7	*11.3	*3.9
Number of emergency service areas								
One	93.5	1.3	99.9	0.1	94.1	2.2	68.3	6.3
Multiple	6.5	1.3	*0.1	*0.1	*5.9	*2.2	31.7	6.3
Type of hospital								
General	96.6	1.0	97.9	1.0	96.1	2.4	92.8	2.8
Speciality	*3.4	*1.0	*2.1	*1.0	*3.9	*2.4	*7.2	*2.8
Outpatient department with physician-supervised clinics								
Yes	47.5	5.5	37.9	9.4	51.8	4.7	73.8	6.0
No	52.3	5.5	62.1	9.4	47.8	4.8	26.2	6.0
Unknown	*0.1	*0.1	*0.0	*0.0	*0.4	*0.4	*0.0	*0.0

. . . Category not applicable.
*Figure does not meet standard of reliability or precision.
0.0 Quantity more than zero but less than 0.05.
[1]ED is emergency department.
[2]MSA is metropolitan statistical area.
[3]On duty or on-call 24 hours a day and 7 days a week.

Technical Notes

Data collection

The NHAMCS data collection is authorized under section 308d of the Public Health Service Act (Title 42 United States Code), Section 306[242k]. Participation is voluntary. In 2002, a sample of 481 general and short-stay hospitals was selected from the SMG Hospital Database. Of the 396 in-scope hospitals with EDs, 376 participated in the NHAMCS for an unweighted ED participation rate of 94.9 percent. A total of 472 emergency service areas (ESAs) were selected from the 396 participating EDs. Of the 472 ESAs, 460 provided 37,337 Patient Record forms yielding an emergency service area response rate of 96.4 percent and an overall ED patient sampling response rate of 91.5 percent. Of the 460 ESAs that provided Patient Record forms, 98.9 percent (N=455) responded fully or adequately, and 1.1 percent (N=5) responded minimally. In previous Advance Data reports, only the ED and ESA participation rates were provided (i.e., information on completed Patient Record forms was not factored into the response rates); these varied between 94 and 97 percent. Starting with the 2001 survey, the response rate calculation has taken into account both the ED and ESA participation rates.

The U.S. Census Bureau, acting as the data collection agent for the survey, provided training to field representatives (FRs) throughout the nation who, in turn, oversaw data collection at the hospital and clinic level. FRs contacted the sampled hospitals for induction into the survey after an advance letter was mailed by NCHS notifying the hospitals of their selection for the survey. Hospital staff were instructed to complete the information requested on the Patient Record forms (figure I). However, in 42.1 percent of the hospital EDs, FRs abstracted the data from medical records or computer printouts. No personally identifying information, such as patient name or address, is collected. Confidentiality of the data collected in the survey is protected under the Privacy Act, Public Health Service Act, Title 42 of the United States Code, Section 242m(d), and Title V of the E-Government Act of 2002.

Sampling errors

The standard error is primarily a measure of the sampling variability that occurs by chance when only a sample, rather than an entire universe, is surveyed. The standard error also reflects part of the measurement error, but does not measure any systematic biases in the data. The chances are 95 out of 100 that an estimate from the sample differs from the value that would be obtained from a complete census by less than twice the standard error.

The standard errors presented in the tables and used in tests of significance for this report were estimated using SUDAAN software. SUDAAN computes standard errors by using a first-order Taylor approximation of the deviation of estimates from their expected values. A description of the software and the approach it uses has been published (8). The relative standard error (RSE) of an estimate is obtained by dividing the standard error by the estimate itself. The result is then expressed as a percent of the estimate. When it is not feasible to use statistical software (such as SUDAAN) for analyzing complex survey data, one may calculate approximate RSEs for aggregate estimates using the following general formula, where x is the aggregate of interest in thousands, and A and B are the appropriate coefficients from table I.

$$\mathrm{RSE}(x) = 100 \bullet \sqrt{A + \frac{B}{x}}$$

Similarly, RSEs for an estimate of a percent may be calculated using the following general formula, where p is the percent of interest, expressed as a proportion, and x is the denominator of the percent in thousands, using the appropriate coefficients from table I.

$$\mathrm{RSE}(x) = 100 \bullet \sqrt{\frac{B \bullet (1-p)}{p \bullet x}}$$

The standard error for a rate may be obtained by multiplying the RSE of the total estimate by the rate.

Published and flagged estimates

Estimates are not presented unless a reasonable assumption regarding their probability distributions is possible on the basis of the Central Limit Theorem. The Central Limit Theorem states that, given a sufficiently large sample size, the sample estimate approximates the population estimate and, upon repeated sampling, its distribution would be approximately normal.

In this report, estimates are not presented if they are based on fewer than 30 cases in the sample data; only an asterisk (*) appears in the tables. Estimates based on 30 or more cases include an asterisk if the RSE of the estimate exceeds 30 percent.

Estimation

Statistics from the NHAMCS are derived by a multistage estimation procedure that produces essentially unbiased estimates. The estimation procedure has three basic components:

- inflation by reciprocals of the sampling selection probabilities,
- adjustment for nonresponse, and

Table I. Coefficients appropriate for determining approximate relative standard errors, by type of estimate: National Hospital Ambulatory Medical Care Survey, 2002: emergency departments

Type of estimate	Coefficient for use with estimates in thousands		Lowest reliable estimate in thousands
	A	B	
Visits	0.001982	5.302	60
Drug mentions	0.003548	14.079	163

- a population weighting ratio adjustment.

NHAMCS data were adjusted to account for two types of nonresponse. The first type occurred when a sample hospital refused to provide information about its ED that was publicly known to exist. In this case, the weights of visits to hospitals similar to the nonrespondent hospitals were inflated to account for visits represented by the nonrespondent hospitals. Hospitals were judged to be similar and grouped together for nonresponse purposes if they had the same ownership control group (voluntary nonprofit versus other) and region. Beginning with the 1998 data, formation of groups of similar hospitals also considered the MSA status of the hospital (in an MSA versus not in an MSA) with the following two exceptions: in the West, MSA status was not considered; and in non-MSA hospitals in the other three regions, ownership control group (voluntary nonprofit versus other) was not considered. This was done because the sample size was too small to use the finer breakdowns in the regions affected.

The second type of nonresponse occurred when a sample ESA within a responding hospital failed to provide completed Patient Record forms for a sample of patient visits. The weights of visits from responding ESAs were inflated to account for visits to similar nonresponding ESAs where ESAs were judged to be similar if they were in the same region. Except in the West, ESA similarity also required having the same MSA status and in MSAs being in the same ownership control group (voluntary nonprofit versus other). Starting in 2001, ESAs that responded minimally (i.e., provided substantially fewer Patient Record forms than expected) were considered nonrespondents for response rate calculations, but their records were included in the final data set. However, their total visit weights were set not to exceed 50 percent of the ESAs count of visits. The remaining weight for these minimally responding ESAs was accounted for by in-scope, responding ESAs of similar hospitals that were in the same PSU.

Nonsampling errors

As in any survey, results are subject to both sampling and nonsampling errors. Nonsampling errors include reporting and processing errors, as well as biases due to nonresponse and incomplete response. The magnitude of the nonsampling errors cannot be computed. However, these errors were kept to a minimum by procedures built into the operation of the survey. To eliminate ambiguities and encourage uniform reporting, attention was given to the phrasing of questions, terms, and definitions. Also, pretesting of most data items and survey procedures was performed. Quality control procedures and consistency and edit checks reduced errors in data coding and processing. Coding error rates ranged from 0.0 to 0.8 percent for various data items.

Item nonresponse rates in the NHAMCS are generally low (5 percent or less). However, levels of nonresponse can vary considerably in the survey. Most nonresponse occurs when the needed information is not available in the medical record and/or is unknown to the person filling out the survey instrument. Nonresponse can also result when the information is available, but survey procedures are not followed and the item is left blank. In this report, the tables include a combined entry of unknown/blank to display missing data. For items where combined item nonresponse is between 30 and 50 percent, percent distributions are not discussed in the text. However, the information is shown in the tables. These data should be interpreted with caution. If nonresponse is random, the observed distribution for the reported item (i.e., excluding cases for which the information is unknown) would be close to the true distribution. However, if nonresponse is not random, the observed distribution could vary significantly from the actual distribution. Researchers need to decide how best to treat items with high levels of missing responses. For items with nonresponse greater than 50 percent, data are not presented.

Weighted item nonresponse rates (i.e., if the item was left blank or the unknown box was marked) were 5.0 percent or less for data items with the following exceptions: reside in a nursing home or other institution (6.0 percent), ethnicity (17.5 percent), primary expected source of payment (6.2 percent), alcohol-related visits (10.0 percent), seen in this ED within the last 72 hours (6.6 percent), episode of care (6.0 percent), intentionality of injury (15.7 percent of injury visits), work-related status of injury (28.2 percent of injury visits), cause of injury (22.7 percent of injury visits), temperature (7.7 percent), pulse (5.7 percent), systolic blood pressure (15.2 percent), diastolic blood pressure (15.4 percent), and duration (8.7 percent).

For some items, missing values were imputed by randomly assigning a value from Patient Record forms with similar characteristics. For the variable ''immediacy with which patient should be seen'' (3.1 percent with missing values, i.e., none of the categories were checked), the grouping was based on ED volume, geographic region, and three-digit ICD–9–CM code for primary diagnosis. The other imputed items were: birth year (2.0 percent), sex (0.8 percent), and race (12.4 percent). Imputation for these items was based on ED volume, geographic region, immediacy with which patient should be seen, and 3-digit ICD–9–CM code for primary diagnosis. This represents a change from previous survey years when imputations were also performed for the following variables—ethnicity, disposition, and providers seen. Beginning in 1997, these latter items were no longer imputed. Blank or otherwise missing responses are noted in the data.

Tests of significance and rounding

In this report, the determination of statistical inference is based on the two-tailed *t*-test. The Bonferroni inequality was used to establish the critical value for statistically significant differences (0.05 level of significance) based on the number of possible comparisons within a particular variable (or combination of variables) of interest. Terms relating to differences such as ''greater than'' or ''less than'' indicate

that the difference is statistically significant. A lack of comment regarding the difference between any two estimates does not mean that the difference was tested and found to be not significant.

In the tables, estimates of ED visits have been rounded to the nearest thousand. Consequently, estimates will not always add to totals. Rates and percents were calculated from original unrounded figures and do not necessarily agree with figures calculated from rounded data.

Calculation of time spent in the ED

If the discharge time was more than 24 hours from the arrival time, the hospital staff were asked to mark a checkbox. These three items were used to derive the amount of time the patient spent in the ED.

Race

The instruction for the race item on the Patient Record form was changed in 1999 to be consistent with standards issued by the Office of Management and Budget to promote comparability of data among Federal data sources and so that more than one race could be recorded per person (17). The new race item includes the following groups: white, black or African American, Asian, Native Hawaiian or other Pacific Islander, and American Indian or Alaska Native. Respondents could check multiple categories for each patient. Prior to 1999, only a single race category could be checked per person. Because of the difference between single and multiple race reporting, race-specific estimates prior to 1999 are not strictly comparable with those from 1999 and subsequent years. From 1999 to the present, only a small proportion of records had multiple races indicated. Where reliable multiple race estimates can be obtained, they are presented in one category. Estimates for specific race categories reflect visits where only a single race was reported. See ''Population figures and rate calculation'' in the ''Technical Notes'' for more information.

Table II. Recodes of diagnosis codes for use in trend analysis of National Hospital Ambulatory Medical Care Survey emergency department data

Diagnosis group	ICD–9–CM codes[1]
Diabetes mellitus	250
Psychoses	290–295,296.0–.1,296.4–.9,297–299
Depression	296.2–.3,311,300.4
Alcohol dependence syndrome, drug dependence, and nondependent abuse of drugs	303–305
Otitis media and eustachian tube disorders	381–382
Cerebrovascular disease	430–438
Pneumonia	480–486
Asthma	493
Arthopathies and related disorders	710–719
Spinal disorders	720–724
Fractures	800–829
Sprains and strains of joints and adjacent muscles	840–848
Intracranial injury, excluding those with skull fracture	850–854
Open wounds	870–897

[1]Based on the *International Classification of of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (13). However, certain codes have been combined in this table to provide broader categories of disease and injury.

According to the same standards, race and Hispanic origin were collected separately. Consequently, all race categories include visits by persons of Hispanic and not-Hispanic origin. Persons of Hispanic origin may be of any race.

Diagnosis groupings

Up to three diagnoses are collected for each sampled visit in the NHAMCS, and each is coded according to the ICD–9–CM. For figures 8–12, all-listed diagnosis data were recoded to provide broader groups of diseases and injury. Table II shows the ICD–9–CM diagnosis code groupings used to produce the trends shown in these figures. Although all of the diagnosis groups displayed in table II were investigated, only those with significant trends were presented in the figures.

Injury groupings

Table 12 presents data on the intent and mechanism producing the injuries that resulted in visits to EDs. Cause of injury is collected for each sampled injury visit in the NHAMCS and is coded according to the ICD–9–CM's ''Supplementary Classification of External Causes of Injury and Poisoning.'' However, for table 12, the first-listed cause-of-injury data were regrouped to highlight the interaction between intentionality of the injury and the mechanism that produced the injury. Table III shows the E-code groupings used to produce this table. For table 13, the Barell Injury Diagnosis Matrix: Classification by Region of Body and Nature of Injury was used to show the distribution of injury-related visits by body site of primary diagnosis (14). Table IV shows the ICD–9–CM groupings to produce this table.

Population figures and rate calculation

The 2002 visit rates for age, sex, race, and geographic region use Census 2000-based postcensal estimates of the civilian noninstitutional population of the United States as of July 1, 2002, as prepared by the U.S. Census Bureau. Between 1992 and 1999, NAMCS and NHAMCS visit rates used 1990 census-based population estimates. The change in visit rates due to switching from the 1990 census-based population estimates to Census 2000-based population estimates presented in this report for age, sex, and race is minimal. For evaluating the effect of the change in base year, the 2000 NAMCS and NHAMCS visit rates were calculated using both the 1990-based population estimates and the 2000-based population estimates. In no case were differences in the two rates statistically significant. Therefore, it is reasonable to conclude that the effect of the change in base year has little impact on observed trends that cross these survey years. For more information on rate comparisons, see http://www.cdc.gov/nchs/about/major/ahcd/ahcd1.htm.

Table III. Reclassification of cause-of-injury codes for use with National Hospital Ambulatory Medical Care Survey data

Intent and mechanism of injury	Cause-of-injury code[1]
Unintentional injuries	E800–E869, E880–E929
Falls	E880.0–E886.9, E888
Motor vehicle traffic	E810–E819
Struck against or struck accidentally by objects or persons	E916–E917
Overexertion and strenuous movements	E927
Cutting or piercing instruments or objects	E920
Natural and environmental factors	E900–E909, E928.0–E928.2
Poisoning by drugs, medicinal substances, biologicals, other solid and liquid substances, gases, and vapors	E850–E869
Fire and flames, hot substance or object, caustic or corrosive material, and steam	E890–E899, E924
Machinery	E919
Pedal cycle, nontraffic and other	E800–E807(. 3), E820– E825(. 6), E826.1, E826.9
Motor vehicle, nontraffic	E820–E825(.0–.5,.7–.9)
Other transportation	E800–E807(.0–.2,.8–.9), E826(.0,.2–.8), E827– E829, E831, E833–E845
Suffocation	E911–E913
Firearm missile	E922
Drowning/submersion	E830,E832,E910
Other and not elsewhere classified	E846–E848, E914–E915, E918, E921, E923, E925–E926, E928.3, E928.8, E929.0–E929.5
Mechanism unspecified	E887, E928.9, E929.8, E929.9
Intentional injuries	E950–E959, E960–E969, E970–E978, E990–E999
Assault	E960–E969
Unarmed fight or brawl, striking by blunt or thrown object	E960.0, E968.2
Cutting or piercing instrument	E966
Firearms	E965.0–E965.4
Other and unspecified mechanism	E960.1, E962–E964, E965.5–E965.9, E967–E968.1, E968.3–E969
Self-inflicted	E950–E959
Poisoning by solid or liquid substances, gases, and vapors	E950–E952
Cutting and piercing instrument	E956
Suffocation	E953
Other and unspecified mechanism	E954–E955, E957–E959
Other causes of violence	E970–E978, E990–E999
Injuries of undetermined intent	E980–E989
Adverse effects of medical treatment	E870–E879, E930–E949

[1]Based on the "Supplementary Classification of External Causes of Injury and Poisoning," *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (13).

Population estimates for race groups in the 2002 NAMCS and NHAMCS are based on Census 2000 where respondents were able to indicate more than one race category (as requested by the 1997 Standards for Federal Data on Race and Ethnicity) (17). The multiple race indication was adopted by the1999 NAMCS and NHAMCS, but the denominators that were available for calculating rates in 1999 and 2000 were based on estimates from the 1990 census, which indicated single-response race categories. The NAMCS and NHAMCS had very few records for multiple race persons so rates for single race groups were calculated by dividing estimates by denominators that included some unidentifiable multiple race persons. Starting with 2001, the denominators used for calculating race-specific visit rates reflect the transition to multiple-race reporting. Specific race denominators reflect persons with a single race identification, and a separate denominator is available for persons of multiple races. In this report, a visit rate for white persons, for example, uses a denominator that reflects the "white only" population, and the numerator is the number of visits where white and no other race category was reported as the patient's race by the health care provider.

Data indicate that multiple races are recorded less frequently in medical records than occur in the general population. The 2002 population estimates indicate that multiple-race persons account for 1.7 percent of the total population, whereas multiple-race patients (as indicated by the provider) account for 0.2 percent of ED visits. This difference exists because hospital staff are less likely to know and record the multiple race preference of the patient and not because, after age-adjusting, persons with multiple races make fewer ED visits. This implies that the race population rates calculated in 2002 are probably slight "overestimates" for the single race categories and "underestimates" for the multiple race category.

Definition of terms

Automated drug dispensing system—An automated drug dispensing system automates the distribution, management, and control of medications within hospitals. It provides a pharmacy link to individual patient medical profiles and is similar to an automatic teller machine (ATM) or vending machine.

Drug mention—A drug mention is the health care provider's entry on the Patient Record form of a pharmaceutical agent—by any route of administration—for prevention, diagnosis, or treatment. Generic as well as brand-name drugs are included, as are nonprescription and prescription drugs. Along with all new drugs, the physician also records

Table IV. Reclassification of body site of primary diagnosis codes for use with the National Hospital Ambulatory Medical Care Survey emergency department data

Body site	ICD–9–CM code[1]
Head and neck	
Traumatic brain injury	800.1–800.4, 800.6–800.9, 800.03–800.05, 800.50–800.55, 801.1–801.4, 801.6–801.9, 801.03–801.05, 801.50–801.55, 803.1–803.4, 803.6–803.9, 803.03–803.05, 803.50–803.55, 804.1–804.4 804.6–804.9, 804.03–804.05, 804.50–804.55, 850.2–850.4, 851–853, 854.03–854.05, 854.1, 950.1–950.3, 800.00–800.02, 800.06, 800.09, 801.00–801.02, 801.06, 801.09, 803.00–803.02, 803.06, 803.09, 804.00–804.02, 804.06, 804.09, 800.50–800.52, 800.56, 800.59, 801.50–801.52, 801.56, 801.59, 803.50–803.52, 803.56, 803.59, 804.50–804.52, 804.56, 804.59, 850.0, 850.1, 850.5, 850.9, 854.00–854.02, 854.06, 854.09, or 995.55
Other head	951, 873.0, 873.1, 873.8, 873.9, 941.x6, or 959.01
Face	802, 830, 848.0–848.1, 872, 873.2–873.7, 941.x1, 941.x3–941.x5, or 941.x7
Eye	950.0, 950.9, 870–871, 921, 918, 940, or 941.x2
Head, face, and neck unspecified	807.5–807.6, 848.2, 925.2, 953.0, 954.0, 874, 941.x8, 925.1, 900, 957.0, 910, 920, 947.0, 959.09, 941.x0, or 941.x9
Spinal cord	806.0–806.1, 952.0, 806.2–806.3, 952.1, 806.4–806.5, 952.2, 806.6–806.7, 952.3–952.4, 806.8–806.9, 952.8–952.9, 957.0, or 959.09
Vertebral column	
Cervical	805.0–805.1, 839.0–839.1, or 847.0
Thoracic/dorsal	805.2–805.3, 839.21, 839.31, or 847.1
Lumbar	805.4–805.5, 839.20, 839.30, or 847.2
Other vertebral column	805.6–805.7, 839.41, 839.42, 839.51–839.52, 847.3–847.4, 805.8–805.9, 839.40, 839.49, 839.50, or 839.59
Torso	
Chest	807.0–807.4, 839.61, 839.71, 848.3–848.4, 926.19, 860–862, 901, 953.1, 875, 879.0, 879.1, 922.0, 922.1, 922.33, or 942.x1–942.x2
Abdomen	863–866, 868, 902.0–902.4, 953.2, 953.5, 879.2–879.5, 922.2, 942.x3, or 947.3
Pelvis and urogenital	808, 839.69, 839.79, 846, 848.5, 926.0, 926.12, 867, 902.5, 902.81–902.82, 953.3, 877–878, 922.4, 942.x5, or 947.4
Trunk	809, 926.8–926.9, 954.1, 954.8–954.9, 879.6–879.7, 922.8–922.9, 911, 942.0, 942.9, or 959.1
Back and buttocks	847.9, 926.11, 876, 922.32, 922.31, or 942.x4
Upper extremity	
Shoulder and upper arm	810–812, 831, 840, 880, 887.2–887.3, 943.x3–943.x6, 912, 923.0, 927.0, or 959.2
Forearm and elbow	813, 832, 841, 881.x0–881.x1, 887.0–887.1, 923.1, 927.1, or 943.x1–943.x2
Wrist, hand, and fingers	814–817, 833–834, 842, 881.x2, 882–883, 885–886, 914–915, 923.2–923.3, 927.2–927.3, 944, or 959.4–959.5
Other and unspecified upper extremity	818, 884, 887.4–887.7, 903, 913, 959.3, 923.8–923.9, 927.8–927.9, 953.4, 955, or 943.x0–943.x9
Lower extremity	
Hip	820, 835, 843, 924.01, 928.01
Upper leg and thigh	821, 897.2–897.3, 924.00, 928.00, or 945.x6
Knee	822, 836, 844.0–844.3, 924.11, 928.11, or 945.x5
Lower leg and ankle	823–824, 897.0–897.1, 837, 845.0, 924.10, 924.21, 928.10, 928.21, or 945.x3–945.x4
Foot and toes	825–826, 838, 845.1, 892–893, 895–896, 917, 924.20, 924.3, 928.20, 928.3, or 945.x1–945.x2
Other and unspecified lower extremity	827, 844.8–844.9, 890–891, 894, 897.4–897.7, 904.0–904.8, 916, 924.4–924.5, 928.8, 928.9, 959.6–959.7, 945.x0, or 945.x9
System-wide	930–939, 960–994, 905–908, 909.0, 909.1, 909.2, 909.4, 909.9, 958, 995.80–995.85, 995.50–995.54, 995.80, 995.85, 909.0, 909.1, 909.2, 909.4, 909.9
Other and unspecified body site injuries	828, 819, 902.87, 902.89, 953.8, 947.1–947.2, 956, 829, 839.8–839.9, 848.8–848.9, 869, 879.8–879.9, 902.9, 904.9, 919, 924.8–924.9, 929, 946, 947.8–947.9, 948–949, 953.9, 957.1, 957.8–957.9, or 959.8–959.9
Adverse effects and medical complications	909.3–909.5, 995.0–995.4, 995.6, 995.86–995.89, 996–999

[1]Based on the ''Supplementary Classification of External Causes of Injury and Poisoning,'' *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD–9–CM) (13).

continued medications if the patient was specifically instructed during the visit to continue the medication. Health care providers may report up to six medications per visit.

Drug visit—A drug visit is a visit at which medication was prescribed or provided by the physician.

Emergency department—An emergency department (ED) is a hospital facility for the provision of unscheduled outpatient services to patients whose conditions require immediate care and is staffed 24 hours a day. If an ED provided emergency services in different areas of the hospital, then all of these emergency service areas (ESAs) are selected with certainty into the sample. Off-site EDs that are open less than 24 hours are included if staffed by the hospital's ED.

Emergency service area—An emergency service area is the smallest administrative unit of an ED where separate patient statistics are kept. It may be located on hospital grounds or operated off site by the hospital.

Emergent visit—An emergent visit is one at which the triage practitioner determines that the patient should receive care immediately to combat danger to life or limb and where any delay would likely result in deterioration. If the visit was determined to be emergent, ''less than 15 minutes'' was to be checked in item 3b, ''Immediacy with which patient should be seen,'' on the Patient Record form.

Episode of care—This term attempts to measure the nature of the care provided at the visit, an initial visit versus a followup visit. An episode of care begins with the initial visit for care for a particular problem and ends when the patient is no longer continuing

treatment. A problem may recur later, but that is considered a new episode of care. An initial visit may be diagnostic in nature, whereas a followup visit may be to check progress or continue therapy.

Followup visit—Care was previously provided for this problem. This is the second or subsequent visit for this problem or complaint.

Hospital—To be in scope for the NHAMCS, a hospital must have an average length of stay for all patients of less than 30 days (short stay) or be a hospital whose specialty is general (medical or surgical) or children's general, except Federal hospitals, hospital units of institutions, and hospitals with fewer than six beds staffed for patient use.

Illness-related visit—A visit is considered illness-related if it was not an injury visit as in the definition for injury-related visit.

Initial visit—This is the first visit to this ED by this patient for care of this particular problem or complaint.

Injury-related visit—A visit is injury-related if ''Yes'' was checked in response to item 4a, ''Is visit related to injury, or poisoning, or adverse effect of medical treatment?;'' if a cause of injury or a nature of injury diagnosis was provided; or if an injury-related reason for visit was reported.

Outpatient department—An outpatient department is a hospital facility where nonurgent ambulatory medical care is provided under the supervision of a physician.

Ownership—Hospitals are designated according to the primary owner of the hospital based on the SMG Hospital Database.

Voluntary nonprofit—Hospitals that are church-related, a nonprofit corporation, or have other nonprofit ownership.

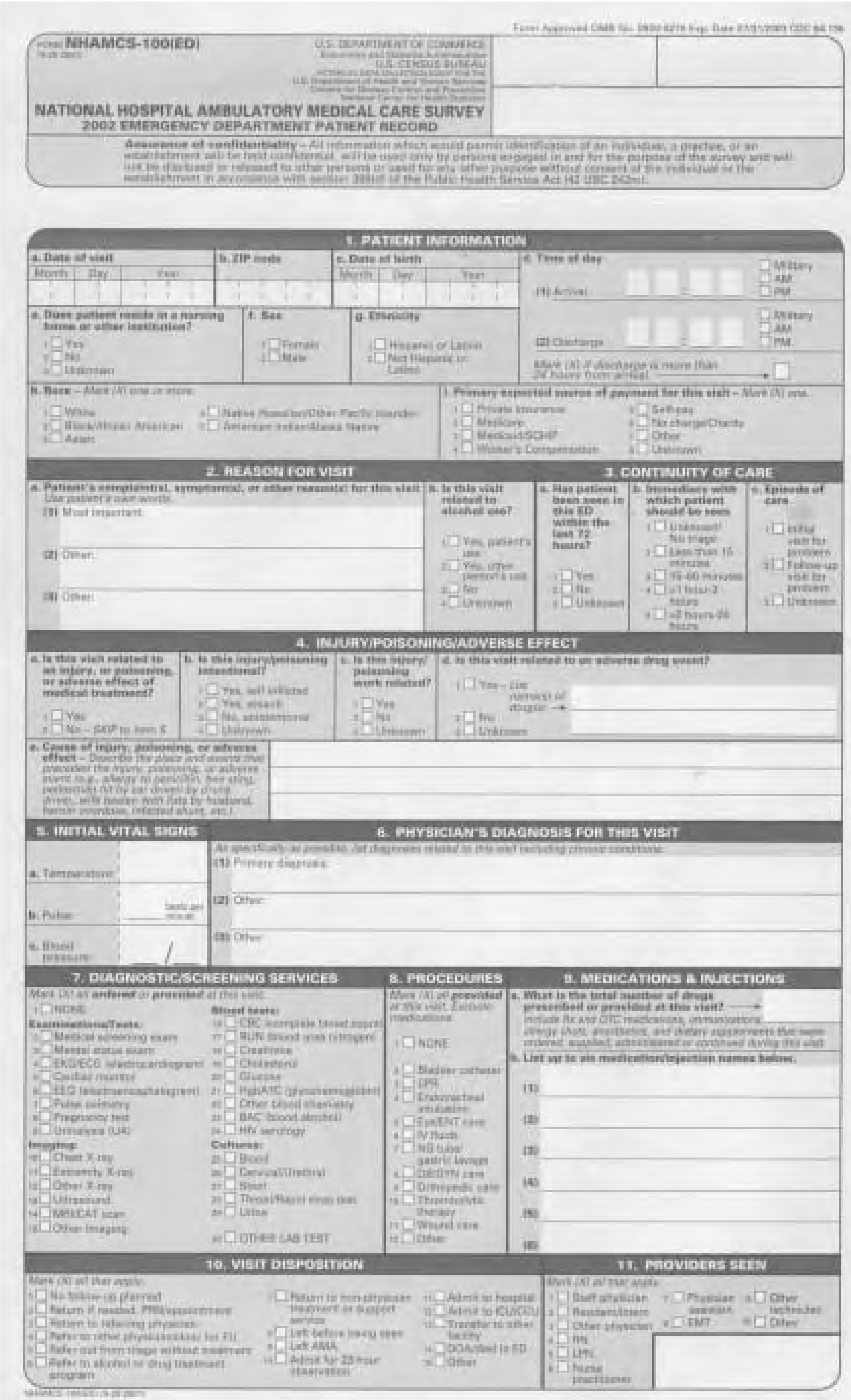
Government, non-Federal—Hospitals that are operated by State, county, city, city-county, or hospital district or authority.

Proprietary—Hospitals that are individually or privately owned or are partnerships or corporations.

Patient—A patient is an individual seeking personal health services who is not currently admitted to any health care institution on the premises. Patients arriving by ambulance are included.

Resuscitative visit—A resuscitative visit is a visit where the reason for visit is respiratory arrest, cardiac arrest, cardiopulmonary arrest, or unconsciousness; cardiopulmonary resuscitation is performed; the visit is injury related and endotracheal intubation is performed; or the patient dies in the ED.

Visit—A visit is a direct, personal exchange between an ambulatory patient seeking care and a physician or other hospital staff member working under the physician's supervision for the purpose of rendering personal health services. Excluded from the NHAMCS are visits where medical care was not provided, such as visits made to drop off specimens, pay bills, and make appointments.



FORM NHAMCS-100(ED)

U.S. DEPARTMENT OF COMMERCE
U.S. CENSUS BUREAU

NATIONAL HOSPITAL AMBULATORY MEDICAL CARE SURVEY
2002 EMERGENCY DEPARTMENT PATIENT RECORD

Assurance of confidentiality – All information which would permit identification of an individual, a practice, or an establishment will be held confidential, will be used only by persons engaged in and for the purpose of the survey and will not be disclosed or released to other persons or used for any other purpose without consent of the individual or the establishment in accordance with section 308(d) of the Public Health Service Act (42 USC 242m).

1. PATIENT INFORMATION

a. Date of visit (Month, Day, Year)
b. ZIP code
c. Date of birth (Month, Day, Year)
d. Time of day — (1) Arrival: Military / AM / PM; (2) Discharge: Military / AM / PM; Mark (X) if discharge is more than 24 hours from arrival.
e. Does patient reside in a nursing home or other institution? 1 Yes, 2 No, 3 Unknown
f. Sex: 1 Female, 2 Male
g. Ethnicity: 1 Hispanic or Latino, 2 Not Hispanic or Latino
h. Race – Mark (X) one or more: 1 White, 2 Black/African American, 3 Asian, 4 Native Hawaiian/Other Pacific Islander, 5 American Indian/Alaska Native
i. Primary expected source of payment for this visit – Mark (X) one: 1 Private insurance, 2 Medicare, 3 Medicaid/SCHIP, 4 Worker's Compensation, 5 Self-pay, 6 No charge/Charity, 7 Other, 8 Unknown

2. REASON FOR VISIT

a. Patient's complaint(s), symptom(s), or other reason(s) for this visit – Use patient's own words. (1) Most important: (2) Other: (3) Other:
b. Is this visit related to alcohol use? 1 Yes, patient's use; 2 Yes, other person's use; 3 No; 4 Unknown

3. CONTINUITY OF CARE

a. Has patient been seen in this ED within the last 72 hours? 1 Yes, 2 No, 3 Unknown
b. Immediacy with which patient should be seen: 1 Unknown/No triage, 2 Less than 15 minutes, 3 15-60 minutes, 4 >1 hour-2 hours, 5 >2 hours-24 hours
c. Episode of care: 1 Initial visit for problem, 2 Follow-up visit for problem, 3 Unknown

4. INJURY/POISONING/ADVERSE EFFECT

a. Is this visit related to an injury, or poisoning, or adverse effect of medical treatment? 1 Yes, 2 No – SKIP to item 5
b. Is this injury/poisoning intentional? 1 Yes, self inflicted; 2 Yes, assault; 3 No, unintentional; 4 Unknown
c. Is this injury/poisoning work related? 1 Yes, 2 No, 3 Unknown
d. Is this visit related to an adverse drug event? 1 Yes – List name(s) of drug(s); 2 No; 3 Unknown
e. Cause of injury, poisoning, or adverse effect – Describe the place and events that preceded the injury, poisoning, or adverse event (e.g., allergy to penicillin, bee sting, pedestrian hit by car driven by drunk driver, wife beaten with fists by husband, heroin overdose, infected shunt, etc.)

5. INITIAL VITAL SIGNS

a. Temperature
b. Pulse (beats per minute)
c. Blood pressure

6. PHYSICIAN'S DIAGNOSIS FOR THIS VISIT

As specifically as possible, list diagnoses related to this visit including chronic conditions. (1) Primary diagnosis: (2) Other: (3) Other:

7. DIAGNOSTIC/SCREENING SERVICES

Mark (X) all **ordered** or **provided** at this visit.
1 NONE
Examinations/Tests: 2 Medical screening exam, 3 Mental status exam, 4 EKG/ECG (electrocardiogram), 5 Cardiac monitor, 6 EEG (electroencephalogram), 7 Pulse oximetry, 8 Pregnancy test, 9 Urinalysis (UA)
Imaging: 10 Chest X-ray, 11 Extremity X-ray, 12 Other X-ray, 13 Ultrasound, 14 MRI/CAT scan, 15 Other imaging
Blood tests: 16 CBC (complete blood count), 17 BUN (blood urea nitrogen), 18 Creatinine, 19 Cholesterol, 20 Glucose, 21 HgbA1C (glycohemoglobin), 22 Other blood chemistry, 23 BAC (blood alcohol), 24 HIV serology
Cultures: 25 Blood, 26 Cervical/Urethral, 27 Stool, 28 Throat/Rapid strep test, 29 Urine
30 OTHER LAB TEST

8. PROCEDURES

Mark (X) all **provided** at this visit. Exclude medications.
1 NONE, 2 Bladder catheter, 3 CPR, 4 Endotracheal intubation, 5 Eye/ENT care, 6 IV fluids, 7 NG tube/gastric lavage, 8 OB/GYN care, 9 Orthopedic care, 10 Thrombolytic therapy, 11 Wound care, 12 Other

9. MEDICATIONS & INJECTIONS

a. What is the total number of drugs prescribed or provided at this visit? Include Rx and OTC medications, immunizations, allergy shots, anesthetics, and dietary supplements that were ordered, supplied, administered or continued during this visit.
b. List up to six medication/injection names below. (1) (2) (3) (4) (5) (6)

10. VISIT DISPOSITION

Mark (X) all that apply.
1 No follow-up planned, 2 Return if needed, PRN/appointment, 3 Return to referring physician, 4 Refer to other physician/clinic for FU, 5 Refer out from triage without treatment, 6 Refer to alcohol or drug treatment program, 7 Return to non-physician treatment or support service, 8 Left before being seen, 9 Left AMA, 10 Admit for 23-hour observation, 11 Admit to hospital, 12 Admit to ICU/CCU, 13 Transfer to other facility, 14 DOA/died in ED, 15 Other

11. PROVIDERS SEEN

Mark (X) all that apply.
1 Staff physician, 2 Resident/intern, 3 Other physician, 4 RN, 5 LPN, 6 Nurse practitioner, 7 Physician assistant, 8 EMT, 9 Other technician, 10 Other

Figure I. Patient Record form

Trade name disclaimer

The use of trade names is for identification only and does not imply endorsement by the Centers for Disease Control and Prevention, U.S. Department of Health and Human Services.

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Centers for Disease Control and Prevention
National Center for Health Statistics
3311 Toledo Road
Hyattsville, Maryland 20782

To receive this publication regularly, contact the National Center for Health Statistics by calling 301-458-4636
E-mail: nchsquery@cdc.gov
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